COMMERCIAL PARKING

A Planner's Handbook

Ontario

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Ministry of Municipal Affairs
Ontario
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PREFACE

This handbook provides an overview of commercial parking standards in Ontario, as well as a commentary on various related aspects, such as the municipal role in supply and financing, design considerations, and future parking trends. The main purpose of this work is to enable municipal planners to more effectively estimate parking requirements for commercial developments. The focus is on stand-alone commercial uses and shopping centres. Although some attention has been paid to mixed-use development and to parking in the central business district (CBD), these matters are sufficiently complex to warrant more in-depth studies.

The main sources of information for this study were two municipal surveys conducted by the Ministry of Municipal Affairs in 1982 and 1984, which at that time was the Ministry of Municipal Affairs and Housing. Commercial parking studies, in particular those by the City of Mississauga, the Borough of Scarborough and the Urban Land Institute (ULI) were used along with data collected by the IBI Group who were retained to carry out a portion of this project.

Some 40 municipalities were surveyed in 1982 to determine the current commercial parking provisions in their zoning by-laws. This survey demonstrated a wide variance in parking requirements for commercial uses among municipalities in Ontario.

In 1984, the Ministry of Municipal Affairs carried out a more in-depth survey of 16 selected municipalities across Ontario. This second survey focussed on current parking policies, parking supply, pricing and management issues, the nature of amendments to zoning by-law requirements, a description of parking problems being experienced in the municipalities, and the results of parking-related surveys which the municipalities may have undertaken in the last few years.

In general, the handbook will provide municipal planners with the most up-to-date information on the key aspects of commercial parking across Ontario. It should be emphasized that this report is not intended as a substitute for either an independent site-specific parking survey to estimate demand or a full-fledged parking study to be conducted by a municipality in reviewing its parking standards and policies.

1.0
INTRODUCTION

The provision of parking is an integral part of the planning and development process in Ontario. Zoning requirements related to parking have been developed by planners to ensure that peak parking demand is met. However, the basis for these requirements are often standards borrowed from other communities or a rough estimate not based on empirical study.

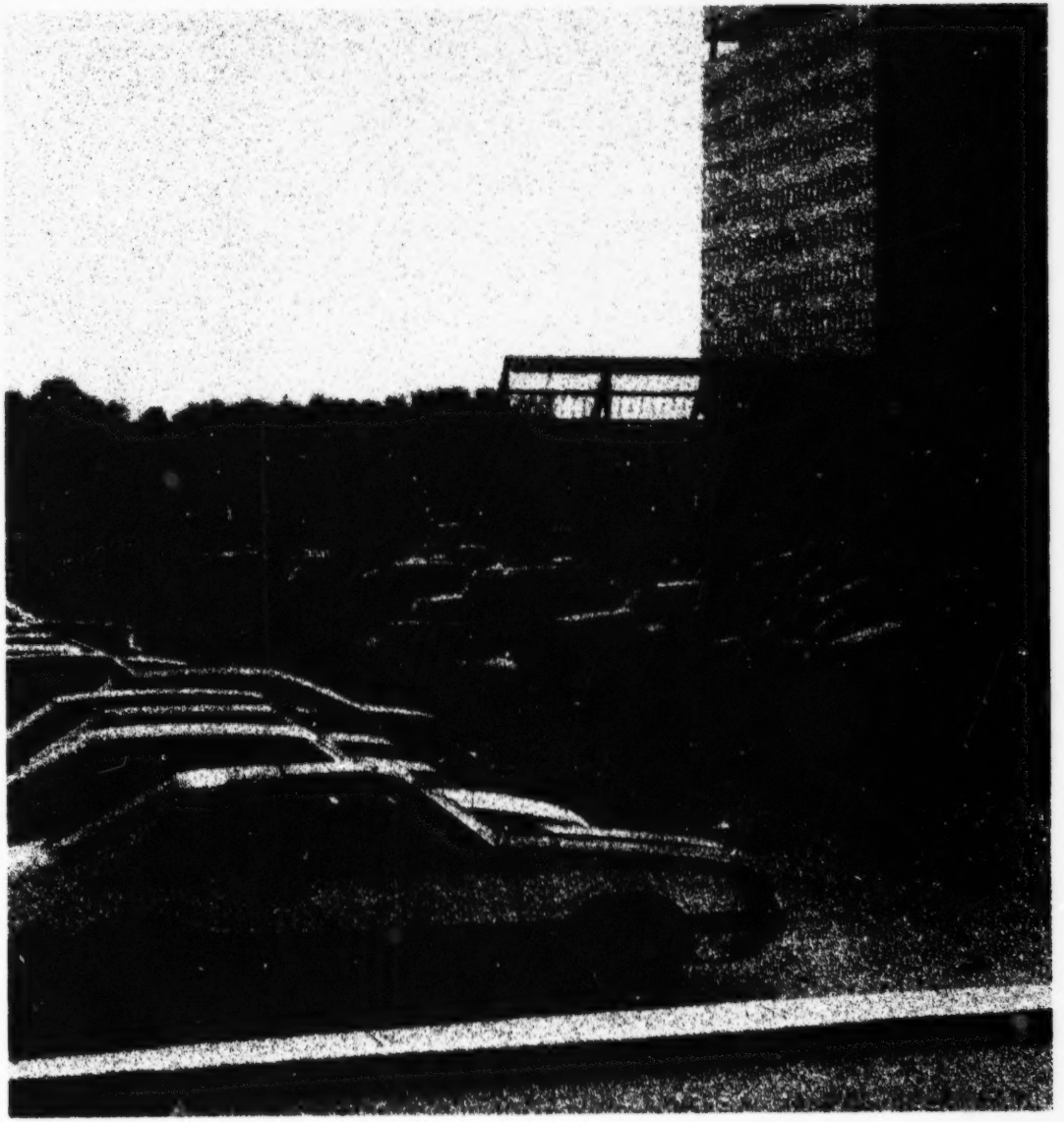
This report outlines and briefly discusses the factors which should be considered when establishing parking standards and policy. More specifically it addresses:

- Factors affecting parking demand;
- Shared use of parking;
- Level of service or supply to be provided (i.e. how much of the demand should be left unsatisfied);
- How and where the parking should be located;
- Provision of public and private parking facilities.

Additional sections include a discussion of commercial parking trends, design considerations and a step-by-step approach to develop appropriate municipal parking standards.

This report is not intended to cover in depth all the various aspects of commercial parking. However, enough basic information is provided so that municipalities can make intelligent choices when:

- Estimating the basic parking demand for commercial uses;
- Evaluating the impact on parking demand of other factors, such as shared use;
- Determining appropriate level of municipal involvement based upon various policy considerations.



1.1 DEFINING COMMERCIAL LAND USES

Commercial development, as it is addressed here, refers to shopping centre developments and stand-alone commercial uses usually found on arterial roads. The CBD, composed of

independently developed individual land uses, is dealt with briefly in this report. Its parking requirements are more complex and the solutions more varied. These will be the subject of further in-depth study.

1.1.1 Shopping Centre Developments

Shopping centre developments can be divided into four categories based on size and major tenant:

- Convenience centres
- Neighbourhood centres
- District and community centres
- Regional centres.

The distinction among the four types of centres is important in estimating parking demand. The type of centre has an effect on the duration of a shopping trip, and therefore, on parking demand.

Table 1 outlines the basic characteristics of these four types.

Table 1

CHARACTERISTICS OF SHOPPING CENTRES

CENTRE TYPE	LEADING TENANT (BASIS FOR CLASSIFICATION)	TYPICAL GLA* (m^2)	RANGE IN GLA (m^2)	RANGE IN SITE AREA	PRIMARY MARKET SUPPORT REQUIRED
Convenience Centre	Convenience Store	1,500	1,000 – 2,500	less than 1 ha	less than 2,500 people
Neighbourhood Centre	Supermarket or major drug store	4,500	2,500 – 9,300	1 to 3 ha	2,500 – 40,000 people
District/Community Centre	Variety, discount or junior department store	14,000	9,300 – 28,000	3 to 12 ha	40,000 – 150,000 people
Regional Centre	One or more full line department stores of at least 9,300 m^2 of GLA	37,000	28,000 – 93,000	12 ha and over	150,000 or more people

Source: The Urban Land Institute, *Parking Requirements for Shopping Centres*, Washington, D.C. 1982

*For the definition of GLA refer to Section 1.2.

1.1.2 Stand-alone Commercial Uses

Various types of commercial land uses generate different parking demands. The following is a list of stand-alone commercial land uses that appear to have distinct parking requirements identified during the course of this study:

- Offices
- Retail
- Medical/dental clinic
- Banks and Trust Companies
- Restaurants
- Entertainment/recreational
- Hotel/motels

1.2 MEASURING PARKING DEMAND

Various factors are used to measure parking demand and these normally reflect the size (floor area), capacity (e.g. seats)

or intensity of the development.

More specifically, these variables are:

- *Gross Floor Area (GFA)* – the term gross floor area (GFA) is a commonly used term representing a measure of the total floor area (to outside of outside walls) of a building, excluding the basement storage and utility space. This measure is generally not considered an acceptable basis for commercial developments.
- *Gross Leasable Area (CLA)* – includes the total floor area of a building including basements, mezzanines and upper floors, minus common areas, including public walkways, malls, public toilets, truck and service facilities and joint service facilities.
- *Number of beds, seats, or professionals* (such as doctors or dentists).

Source: City of Scarborough Planning Department *Commercial and Office Parking Study* 1977.

Table 2

COMMERCIAL PARKING LAND USE CATEGORIES

LAND USE CATEGORY/DEVELOPMENT TYPE	DESCRIPTION/COMPONENTS	APPROPRIATE VARIABLE TO MEASURE DEMAND
Offices	Provision of office space for business, technical, professional services	gross leasable area
Retail – general retail – food supermarket	Store or group of stores, services and/or retail facilities	gross leasable area
Medical/Dental – offices – clinic	Offices related to medical treatment facilities	number of practitioners or beds
Financial Institutions	Banks and trust companies	gross leasable area
Restaurants – full service – drive-in/fast-food	Establishment with kitchen facilities for food preparation and sale	gross leasable area
Entertainment/Recreational	Provision of assembly space for entertainment or recreation	number of fixed seats or gross floor area for assembly
Hotel/Motel		number of bedrooms
Shopping Centres	All types: convenience, neighbourhood, district and regional	gross leasable area
Mixed-use Developments	Developments combining retail, office and/or residential uses	gross leasable area

Parking demand is created by the intensity of commercial activity which is more accurately defined by GLA. GFA is not as accurate a measure of parking demand in most cases. Depending upon the design of a development, GFA may vary considerably from one development to another for the same level of commercial activity. However, there are situations where GFA would be a preferred choice. For example, GFA is a suitable measure for certain types of entertainment uses, such as exhibition halls where seating is not provided.

In some cases neither GFA or GLA can provide an accurate method of estimating parking demand and, therefore, other types of measures must be used. For example, in the case of medical and dental clinics, *the number of practitioners or beds* would represent a more direct link to potential parking demand. Measures of floor space, such as GLA, cannot be used with confidence as a substitute for the number of practitioners, since different practitioners have different space requirements.

Similarly, in the case of entertainment land uses, *seating capacity* is a more direct indication of parking demand than the floor area. With hotels and motels, *the number of bedrooms* is the most closely related variable to parking demand. Table 2 briefly describes the various components included in each land use category and the preferred measures of parking demand for each type.

2.0
DEVELOPING COMMERCIAL PARKING STANDARDS AND POLICY

Any detailed assessment of parking standards involves surveys and studies usually beyond the normal resources of a municipality. The result is that parking standards are often adopted, in whole or in part, from those used by other municipalities. Any imperfections tend to be perpetuated. This publication provides municipalities with a better understanding of basic commercial parking requirements and with the knowledge about how to proceed to refine those standards to reflect local conditions.

To develop appropriate standards, there are a number of steps that should be followed. The approach suggested below should enable a municipality to use available resources, such as information on parking use and revenues along with special surveys which may have been carried out, to develop new or revised commercial parking standards. If there are no unusual circumstances or growth pressures, it may not be necessary to undertake new parking studies. Existing municipal standards could simply be evaluated against those suggested in this book to determine if some adjustment is needed. On the other hand, if there are situations which merit some degree of flexibility, especially in terms of large development applications, revision of the suggested standards may be advantageous to all parties concerned.

2.1 THE PROCESS

Figure 1 outlines a suggested process to develop detailed parking standards. It is anticipated, where revision to standards is contemplated, that this would be carried out by the municipal department assigned the responsibility for parking, in conjunction with planners and other affected municipal departments.

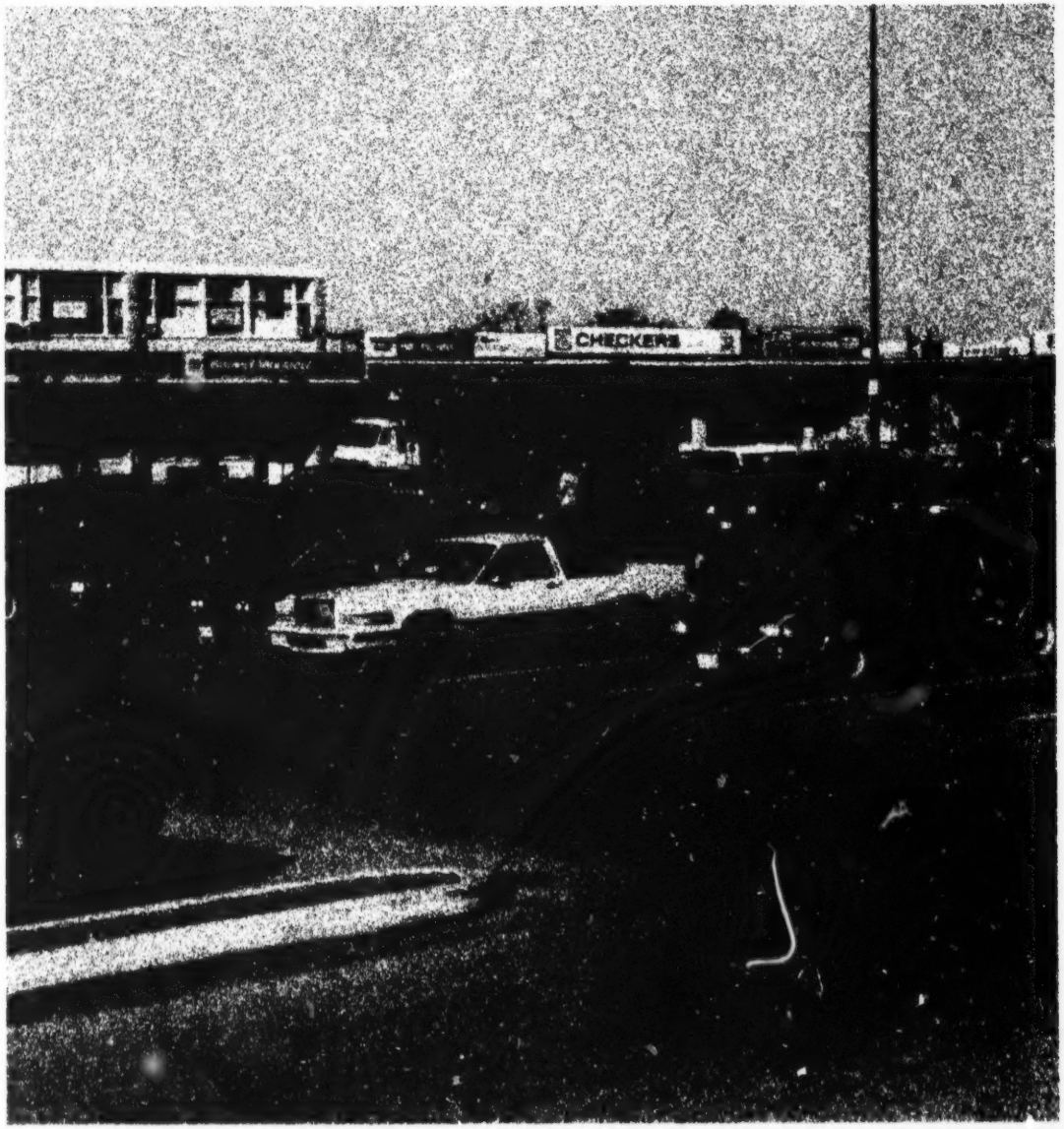
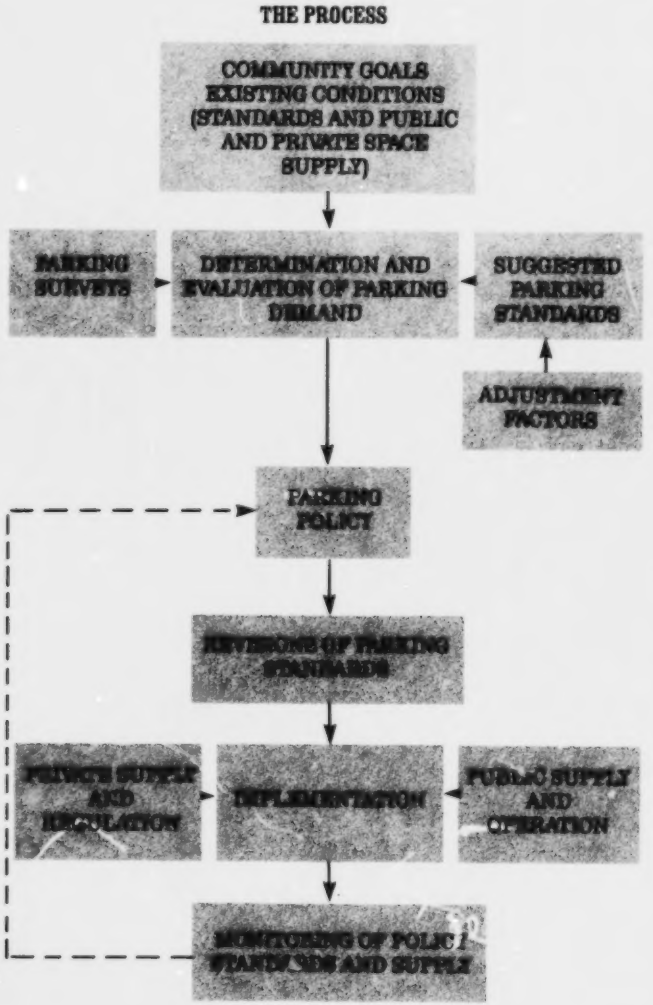


Figure 1

DEVELOPMENT OF COMMERCIAL PARKING STANDARDS



Initially, of course, the community goals should be clearly identified to provide a framework for the parking study and analysis to be undertaken. These could include statements as general as:

- Encouragement of central area revitalization;
- Development of more mixed-use projects;
- Better utilization of public transportation;
- Relief from traffic congestion and pollution;
- Creation of pedestrian precincts;
- Efficient use of land;
- Preservation of amenities;
- Better management, control and financing of on-street and off-street parking facilities.

Once the goals have been identified, then an assessment of the existing commercial parking supply may be undertaken. This would include private and public commercial parking spaces, on and off-street facilities and the management (pricing and time regulations) of those spaces. If conditions have remained relatively unchanged in the community over the past few years, if there are no unusual circumstances, such as seasonal demand, and if no significant developments are anticipated in the near future, the municipality may simply want to evaluate its standards and supply against the community goals identified above to ensure that they are realized. At this stage, existing standards should also be checked against those suggested in this handbook to determine if any anomalies exist, which may warrant more in-depth considerations.

On the other hand, if changes have occurred or problems with parking are present, the municipality should then proceed to examine the demand for commercial parking space. This could result in detailed and costly parking surveys, gathering empirical data from other sources, or the application of standards suggested in this report modified by adjustment factors, such as transit use or community type. After this analysis has taken place, but prior to the finalization of revised parking standards, municipal policies on commercial parking should be established. These would take into account community goals as well as existing conditions and anticipated future changes to commercial parking. The

policies should be more precise than the goals and should specify actions the municipality can take:

- Expand public transit service to downtown;
- Curtail parking on arterial roadways during rush hours;
- Increase the number of small publicly-owned parking lots in a neighbourhood commercial area;
- Increase public role in downtown parking supply and management;
- Utilize Sec. 39 of the Planning Act to allow for cash-in-lieu agreements with the owners.

With the policies in hand, the parking standards can then be revised. During the implementation stage, the regulation of these standards becomes critical. Zoning by-laws, site plan agreements, community improvement plans and BIA plans are all regulatory vehicles for the municipality to control the amount, location and nature of commercial parking.

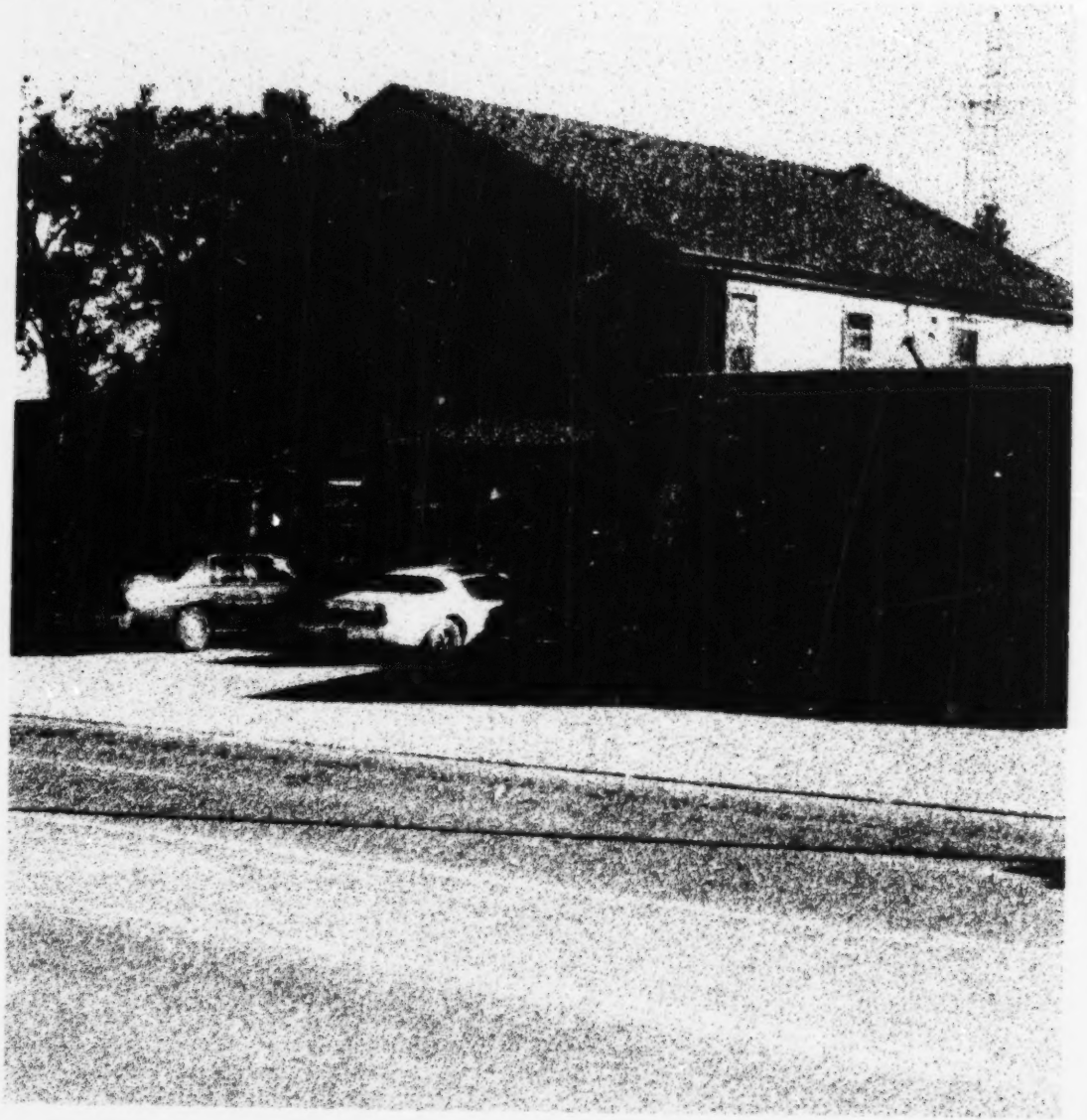
Like all urban development processes, commercial parking demand and supply is subject to change. Therefore, the adequacy of these standards should be monitored by way of selected study, observation, complaints, media interest, etc. The identified inadequacies could be related to the standards and the commercial parking policy. The feedback link should be used to revise the standards. The determination and review of commercial parking requirements should be a controlled process. Parking surveys are generally time-consuming and expensive to carry out. The starting point is the acceptance of basic parking standards by as many interested parties as possible and a policy that is reasonable and rational in the municipality where the standards are to be applied. In the next few chapters, basic parking standards are suggested along with a discussion of how they may be modified to fit a specific community and how they relate to the supply and management of commercial parking space, both public and private.

3.0
PARKING DEMAND

Parking demand can be defined as the maximum number of cars seeking a parking spot at a location at any time during the year. Each commercial land use generates its own basic demand which is a reflection of:

- Intensity of space use;
- Frequency of use; and
- Customer turnover.

Intensity of use refers to the number of customers per unit of space at any given time. Frequency of use refers to the number of times a customer is likely to visit the facility in a period of time (e.g. a month or year). Finally, customer turnover is the average time a customer is likely to spend in the facility. Food supermarkets are generally high in intensity and frequency of use, whereas fast-food restaurants and convenience stores have high customer turnover.



3.1 SUGGESTED PARKING STANDARDS

Suggested parking standards for shopping centres and stand-alone commercial land uses are presented in this chapter. They are based upon an analysis of data from Ontario surveys and other parking studies. The suggested standards represent a basic generic demand for these categories. Adjustments based upon local conditions should be applied before they are adopted. The most common type of adjustments or considerations are discussed in section 3.4.

3.2 SUGGESTED STANDARDS FOR SHOPPING CENTRES

A shopping centre is a unique commercial development where parking requirements cannot be satisfactorily developed on the basis of individual commercial land uses that comprise it. The standards are established more appropriately on the basis of overall size of the development measured in terms of GLA.

Ontario parking standards for various types of shopping centres range from 4.3 to 5.3 spaces/100 m² GLA. This compares directly with parking standards of 4.3 and 5.4 spaces/100 m² GLA found in a major U.S. study of shopping centres.*

Suggested standards are outlined in Table 3. The standards should be considered for centres primarily devoted to retailing. If retailing is not a substantial part of a shopping centre development under consideration, the suggested standards should be adjusted (i.e. reduced) by applying a different factor for the non-retail portion of the development. These suggested standards will probably not meet the once a year peak demands often experienced near Christmas time.

Table 3

PARKING STANDARDS FOR SHOPPING CENTRES

TYPE	SUGGESTED STANDARD
Regional shopping centre	5.4 spaces/100 m² GLA
District shopping centre	5.4 spaces/100 m² GLA
Neighbourhood shopping centre	4.9 spaces/100 m² GLA
Convenience shopping centre	4.2 spaces/100 m² GLA

3.3 SUGGESTED STANDARDS FOR INDIVIDUAL COMMERCIAL LAND USES

3.3.1 Offices

The most common standard found in the Ministry survey of Ontario communities was 4 spaces/100 m² GLA. However, a wide range of standards from 3.0 to 7.4 spaces/100 m² GLA was noted in the surveyed municipalities.

Various municipal studies of office parking indicate an actual demand level of 3.2 – 3.6 spaces/100 m² GLA. This lower value represents demand at the 90 percent confidence level. In other words, this level of parking supply would satisfy the demand 90 percent of the time.

It is suggested that a basic parking standard of 3.5 spaces/100 m² GLA be used in areas where there is little or no public transit service.

3.3.2 General Retail

The survey indicated a very wide range of standards in use: from 1.1 spaces/100 m² GLA to 5.9 spaces/100 m² GLA. The two most common standards found in the survey were 4 spaces/100 m² and 5.5 spaces/100 m² GLA.

For general retail, the data was only available for shopping centre type developments. Based on the discussion presented under 'Suggested Standards for Shopping Centres' *it is suggested that for general retail land uses a basic standard of 5.4 spaces/100 m² can be applied.*

3.3.3 Supermarkets

Less than half of the municipalities reviewed had specific parking standards for supermarkets. Forty-five percent of those had a parking requirement of about 5 spaces/100 m² GLA, but almost a third of the municipalities had standards greater than 6.5 spaces/100 m² GLA. The range of standards observed in surveyed municipalities was from 2 to 11.6 spaces/100 m² GLA.

In the case of stand-alone supermarkets, it is suggested that the standard proposed for general retail be increased in order to account for longer parking time per stall generated by these land uses and their higher peaking factors.

The suggested standard for supermarkets is, therefore, 5.9 spaces/100 m² GLA.

*Source: The Urban Land Institute, *Parking Requirements for Shopping Centres*, Washington, D.C. 1982.

3.3.4 Medical and Dental

The Ministry survey indicated a range of 3 to 6 spaces per practitioner in Ontario municipalities. Other municipal studies indicate that parking demand generated by medical/dental offices and clinics depends on the size of the establishment. Small clinics (with 6 or fewer practitioners) generate an average parking demand of 6 spaces per practitioner. On the other hand, the average demand generated by larger facilities is 4 spaces per practitioner.

It is recommended that the basic parking requirement for this land use be considered in two steps:

- *6 spaces/practitioner for the first 5 practitioners*
- *4 spaces/practitioner for the remaining practitioners in the clinic.*

3.3.5 Banks and Trust Companies

In many municipalities the parking standard for financial institutions is similar to the standard for commercial office land uses. However, detailed parking studies indicate that financial institutions generate a higher parking demand than offices. It has also been observed that many banks provide more parking spaces than needed to meet the parking demand. This could be a reflection of their desire to provide a high level of service to their customers.

It is recommended that the parking requirements for banks and trust companies be set at 5.9 spaces/100 m² GLA, the same as supermarkets.

3.3.6 Restaurants

Parking demand generated by restaurants depends upon the type and peaking characteristics. Restaurants can be classified into three types:

- Full service (high quality, some with lounge facilities),
- Drive in/Fast-food,
- Take-out (no seating available).

The Ministry's survey recorded a wide assortment of parking standards and measurement units for this classification. It revealed four different types of measures:

- space per person
- space per public floor area
- space per GLA
- a combination measure

3.3.7 Full Service Restaurants

The standards in the survey ranged from 11.6 spaces to 30 spaces/100 m² GLA.

Municipal parking studies indicate the demand fluctuates from 7.8 to 27.8 spaces/100 m² GLA. The wide variation can probably be attributed to local market conditions. A major study* recommended a standard of 10.75 spaces/100 m² GFA. However, another study** concluded that a standard of 21.5 spaces/100 m² GLA would satisfy the requirement of 90 percent of the cases.

It is suggested that a basic standard of 22 spaces/100 m² GLA should be considered.

3.3.8 Drive-in/Fast-food

Municipalities generally use two types of standards:

- A minimum of 25 spaces, plus 1 space per 8.6 m² GLA in excess of 125.5 m² GLA or
- 47.6 spaces/100 m² GLA.

The Scarborough and Etobicoke studies in Ontario reported standards of 29 spaces/100 m² GLA and 16.12/100 m² GFA respectively. The Ministry results appear to be high relative to measured demand in Scarborough and Etobicoke, *therefore, a standard of 29 spaces/100 m² GLA is suggested.*

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* Source: City of Etobicoke, *Restaurant Study*, 1980.

**Source: City of Scarborough, *Commercial and Office Parking Study*, 1977.

3.3.9 Take-out Restaurants

Various standards are used in municipalities:

- 22 spaces/100 m² GLA, or
- Minimum of 10 spaces regardless of size, or
- 16.6 spaces/100 m² GLA.

Take-out establishments usually generate a lower demand for parking than either full service or fast-food restaurants. Data on this type of demand from parking studies is limited; however, the Etobicoke study recommended a standard of 11.75/100 m² GFA.

A standard of 17 spaces/100 m² GLA should be appropriate in most cases.

3.3.10 Entertainment/Recreation

This category includes a wide variety of uses which do not seem to generate similar patterns of demand. The uses most often included in this category are: arenas, recreation centres, fitness clubs, racquet clubs, auditoriums, theatres, tennis courts, stadiums, cinemas and fairgrounds.

A range of 1 space per 4 seats to 1 space per 8 seats for various recreational areas has been found across the Province. For theatres, parking standards range from 1 space per 5 seats to one space per 16 seats.

A U.S. study found peak theatre demand to be 0.3 spaces per seat capacity. For Ontario, however, there is no empirical data relating to entertainment/recreational facilities. Municipalities should undertake surveys of specific recreational facilities to establish demand.

However, a base figure of one space per 6 seat capacity could be used, if a survey is not taken to determine specific requirements.

3.3.11 Hotels/Motels

Differences may exist between parking requirements for hotels and motels in many municipalities. In general, the parking requirements for hotels are less than those for motels. However, empirical data is not available to suggest a different standard for motels.

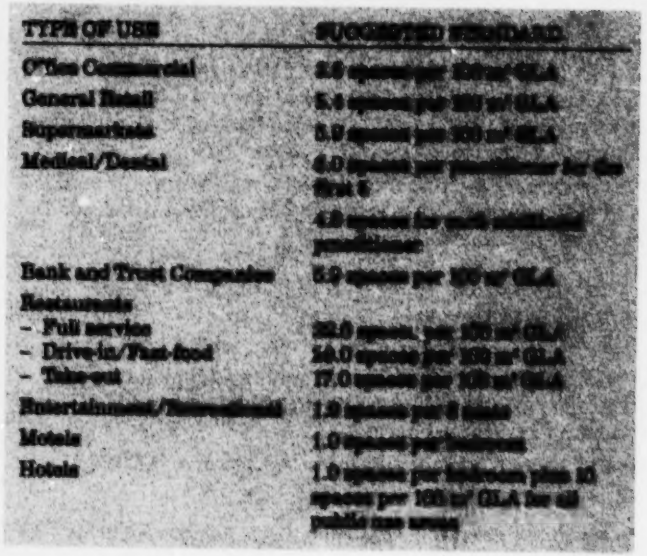
There is also a great variation in standards in this category across the Province. However, the most common standard used was 1 space per bedroom, plus additional requirements for public areas in the case of hotels.

A basic standard for motels is 1 space per bedroom
For hotels the suggested standard is 1 space per bedroom, plus 10 spaces/100 m² GLA for all public use areas. This compares with the findings of the ULI study of 16 hotels in the U.S.

The following table summarizes suggested standards for individual land uses.

Table 4

PARKING STANDARDS FOR COMMERCIAL LAND USES



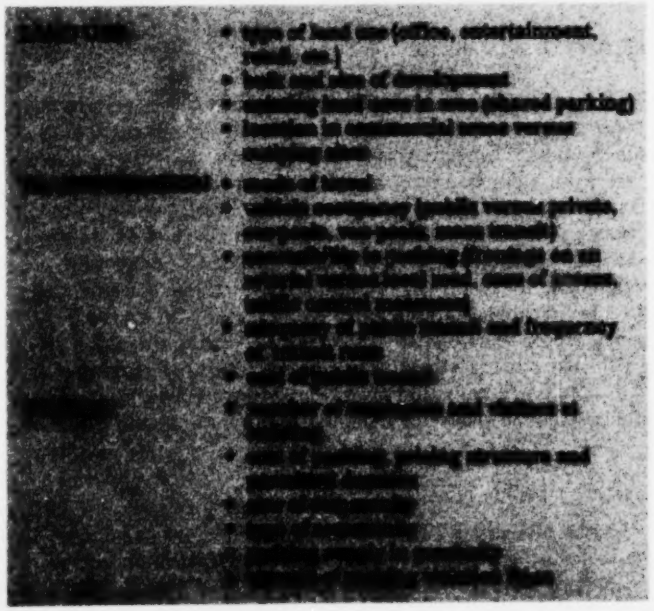
TYPE OF USE	SUGGESTED STANDARD
Office/Commercial	
General Retail	
Supermarkets	
Medical/Dental	
Bank and Trust Companies	
Restaurants	
– Full service	
– Drive-in/Fast-food	
– Take-out	
Entertainment/Recreational	
Motels	
Hotels	

3.4 FACTORS AFFECTING DEMAND

The type of commercial land use is the single most important factor in determining the level of parking demand. However, a number of other factors can also alter the level of demand. The actual number of parking spaces required by a commercial development, therefore, can vary significantly. Major factors affecting parking demand may be grouped into land use, transportation and a general category. These are set out in Table 5 below.

Table 5

FACTORS AFFECTING PARKING DEMAND



Some factors, such as community size, seem to have the dual impact of both increasing and decreasing the demand for parking, thereby neutralizing the net impact. For example, lower land costs in smaller communities could mean lower intensity of land use and lower parking demand. On the other hand, lower levels of traffic congestion, shorter travel time and ample parking could increase demand. These opposing factors appear to counteract each other thereby minimizing the overall impact of community size on parking demand.

Ideally, it would be desirable to be able to evaluate the quantitative impact of each factor in a given situation. However, the lack of empirical data supporting the relationship between parking demand and these factors, except for the impact of shared-use parking, means that cannot be done at this time. Nevertheless, it is possible to provide some general guidelines on the likely impact of these factors on demand. The following comments should be useful in determining suitable adjustments to the suggested base demand levels to reflect local conditions.

3.4.1 Communities With Special Characteristics

The special characteristics of a community can significantly alter peak parking demand at certain times of the year. Special characteristics could include among other factors:

- high tourist traffic;
- significant snow accumulations;
- a heavy concentration of workers on evening or night shifts;
- large seasonal variation in population, such as university towns and cottage areas;
- seasonal events which draw large crowds e.g. agricultural fairs, exhibits, etc.

Communities with special characteristics may need extra parking over and above the normal demand for only a portion of the year. The amount of this extra parking should be estimated by analyzing local conditions and undertaking on-site surveys. To provide for and maintain parking for this extra demand could be expensive. Possible solutions lie in utilizing, as much as possible, vacant or unused land to accommodate extra parking demand, especially when it is for a short duration, such as fairs and exhibits.

3.4.2 Transit Use

The use of public transportation in medium-sized municipalities ranges from 0.5 to 6 percent of the total trips.* Except in large cities, where a greater percentage of work trips may be made by public transit, it is not a significant figure in reducing parking demand in most communities. An adjustment based on highest use would be most relevant to office development because the highest levels of transit service coincide with office ridership. On the other hand, in the case of other commercial developments, peak demand periods generally coincide with periods of low level transit service. When calculating an adjustment due to public transit, it is important to estimate the number of trips during peak demand period and divide them by average rate of car occupancy to determine the number of cars equivalent to transit trips in peak period.

3.4.3 Types of Development

Commercial development typically occurs in one of the following categories:

- Shopping centres
- Stand-alone or strip development
- Downtown development.

It has been estimated that retail stores and supermarkets generate the highest parking demand at the regional or district shopping centre level. **A reduction of 10 percent to the total number of parking spaces required can be applied at the neighbourhood level and 20 percent at the convenience centre level. *** These reductions have been established on the basis of increased walking trips plus high turn-over of customers due to the nature and location of neighbourhood and convenience stores. No adjustments are suggested for stand-alone or strip commercial developments.

The parking situation in downtowns is most complex. Any reductions in parking standards in the C.B.D. should be related to factors such as transit use, shared parking, parking supply and location etc. Also, municipalities may choose to suppress parking demand in the C.B.D. to achieve other objectives, such as relief from traffic congestion and pollution.

Currently, a number of municipalities have lower parking standards for their downtown areas. The reductions range from 15 percent to total exemptions. A basic reduction of 10 percent in downtown can be applied for all commercial land uses, except for hotels and motels. This is to allow for the increased use of curbside parking and shared use parking that takes place in central areas. Futher reductions can be considered on the basis of additional (such as incidence of mixed use developments) factors and in relation to municipal policy options. They are discussed in the section on C.B.D. parking standards later in this report (chapter 6).

3.5 SHARED USE PARKING

Peak parking demand for different land uses often occurs at different times of the day. Opportunities for sharing parking spaces exist if the uses are located close to each other. Shared use parking can be maximized especially in the downtown areas and larger shopping centres where mixed-use development is more likely to occur. In this way, not only can parking facilities be shared, but the land can be used more efficiently. For example, a building could house offices and a theatre. In this situation, parking can usually be shared because peak parking for offices occurs during the day and for theatres in the evening. As shown in Figure 2, parking demands for certain land uses have different peaking characteristics. Therefore, the total number of parking spaces

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*Source: Ministry of Transportation and Communications, and Ontario Urban Transit Association, *Ontario Urban Transit Fact Book*, 1980

**Source: MacLean Hunter Ltd., *Canadian Directory of Shopping Centres*, 1981-82

***Source: City of Mississauga Planning Department, *Commercial and Industrial Parking Study*, September 1979

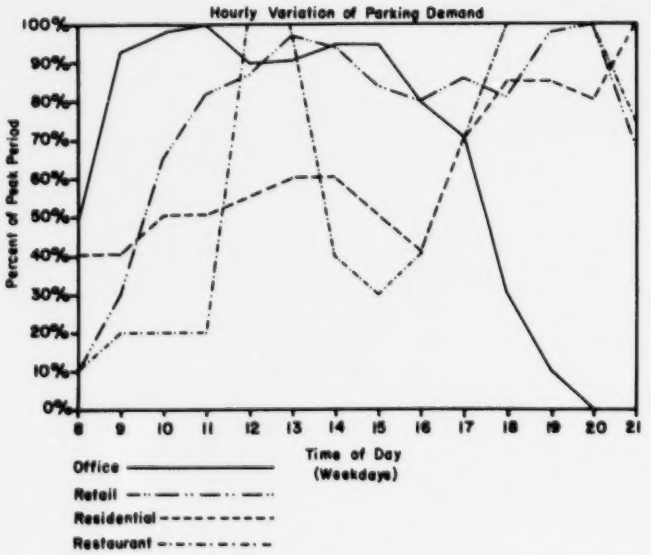
The Urban Land Institute, *Parking Requirements for Shopping Centres*, Washington, D.C. 1982

required for a particular mixed-use development is less than the sum of the spaces required for each individual land use within the development. By saving land needed for parking, future developments can be accommodated or, alternatively, a larger complex can be built on a smaller parcel of land. Also, shared parking is likely to decrease construction costs of parking facilities.

Currently, most by-laws define the parking requirements for mixed-use developments as the sum of the separate requirements for each of the individual land uses within that development. Some municipalities, such as Mississauga and Toronto, allow for adjustments to the parking requirements which reflect the potential for shared use of parking spaces.

Figure 2*

HOURLY PARKING ACCUMULATION CURVES



* Sources: City of Mississauga, *Commercial and Industrial Parking Study*, September, 1979 *Parking Utilization Survey*, 1978 and *Residential Parking Study*, 1977

Table 6

PARKING REQUIREMENTS FOR A MIXED USE DEVELOPMENT

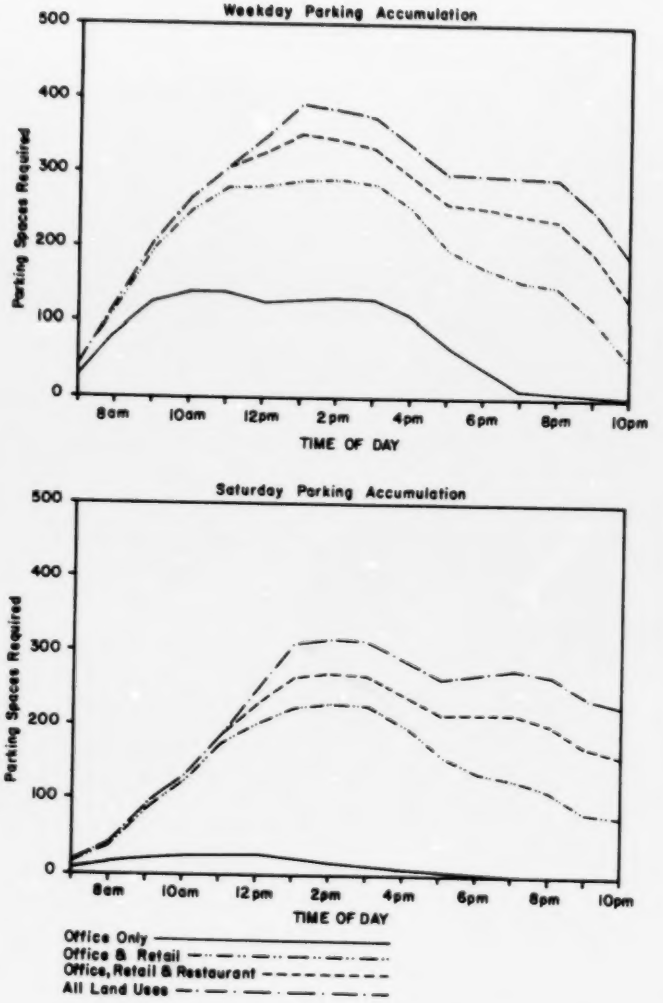
LAND USE	BASIC PARKING REQUIREMENTS	SIZE (m^2)	STAND ALONE REQUIREMENTS	WEEKDAYS (1:00 P.M.)	SATURDAYS (2:00 P.M.)
Office	3.5/100 m^2 GLA	4,000	140	126	14
Retail (Neighbourhood Centre)	4.5/100 m^2 GLA	4,400	198	168	185
Restaurant	22/100 m^2 GLA	400	88	88	70
Cinema	1/six seats	400 seats	67	40	48
TOTALS			511	390	317

An illustration of the impact of shared use parking on the total parking requirements of a mixed-use development is presented in Figure 3. Peak parking demand for a development with the land use breakdown shown would occur weekdays at 1 p.m. and Saturdays at 2 p.m. Because of the mixed-use nature of the development, the maximum parking requirement for the development is 390 spaces during weekdays and 317 spaces on Saturdays, as shown in Table 6. This compares with a need for 511 spaces, if each of the land uses were developed independently with separate parking facilities. This reduction in overall parking space requirements would reduce construction costs by approximately $250,000 if the spaces were provided in surface parking lots. Furthermore, there would be land savings of approximately 3,000 m^2, assuming a surface parking lot was built.

Although the specific parking accumulation curves presented in Figure 2 may not be totally transferrable to small and medium size municipalities in Ontario, the general shape of the curves is likely to be representative. Therefore mixed-use developments in these municipalities could have significantly lower parking requirements if adjustments are made to account for the effects of shared use parking.

Parking demand by time of day is presented in Table 7 and could be used in small and medium size communities where there is no data on parking accumulation profiles.

Figure 3



Source: The Urban Land Institute, *Shared Parking Demand for Selected Land Uses*, Autumn, 1983

Table 7

PARKING DEMAND BY TIME OF DAY

LAND USE	MORNING	NOON	AFTERNOON	EVENING
Office	100	90	85	10
Retail				
District	80	90	85	90
Neighbourhood	70	80	80	85
General	80	85	80	90
Restaurant	20	90	40	100
Cinema	0	40	80	90
Residential	70	60	70	100

LAND USE	MORNING	NOON	AFTERNOON	EVENING
Office	10	10	10	10
Retail				
District	80	90	100	40
Neighbourhood	80	100	100	80
General	80	100	100	80
Restaurant	20	80	80	100
Cinema	20	70	70	100
Residential	100	90	80	100

Adapted from: *Shared Parking*, Urban Land Institute, 1983
Commercial Parking Study, City of Mississauga, 1979

3.5.1 Implementing a Shared Parking Policy

For efficient use of shared parking facilities, some general guidelines* are:

- Each parking space should be usable by all parkers, i.e. no restrictions;
- The facility should accommodate significant in-bound and out-bound traffic flow at one or more periods of the day. Therefore, the design of the access and the circulation system should be easy to understand and use;
- Because of the variety in types of parkers (business, daily vs. infrequent, shoppers, visitors, recreational etc.) the facility should have effective signage, markings and other communication tools;
- Thought should be given to enforcement of parking times for on-site visits, since the facility will be affected by parkers who overstay their limits;
- A strategy should be developed in order to guide parkers to all spaces in the facility. The strategy should also consider separation of parkers who tend to compete for space (shoppers and matinee moviegoers); minimum walking distance to those land uses having a captive market;
- Shared parking can be used as a development tool.

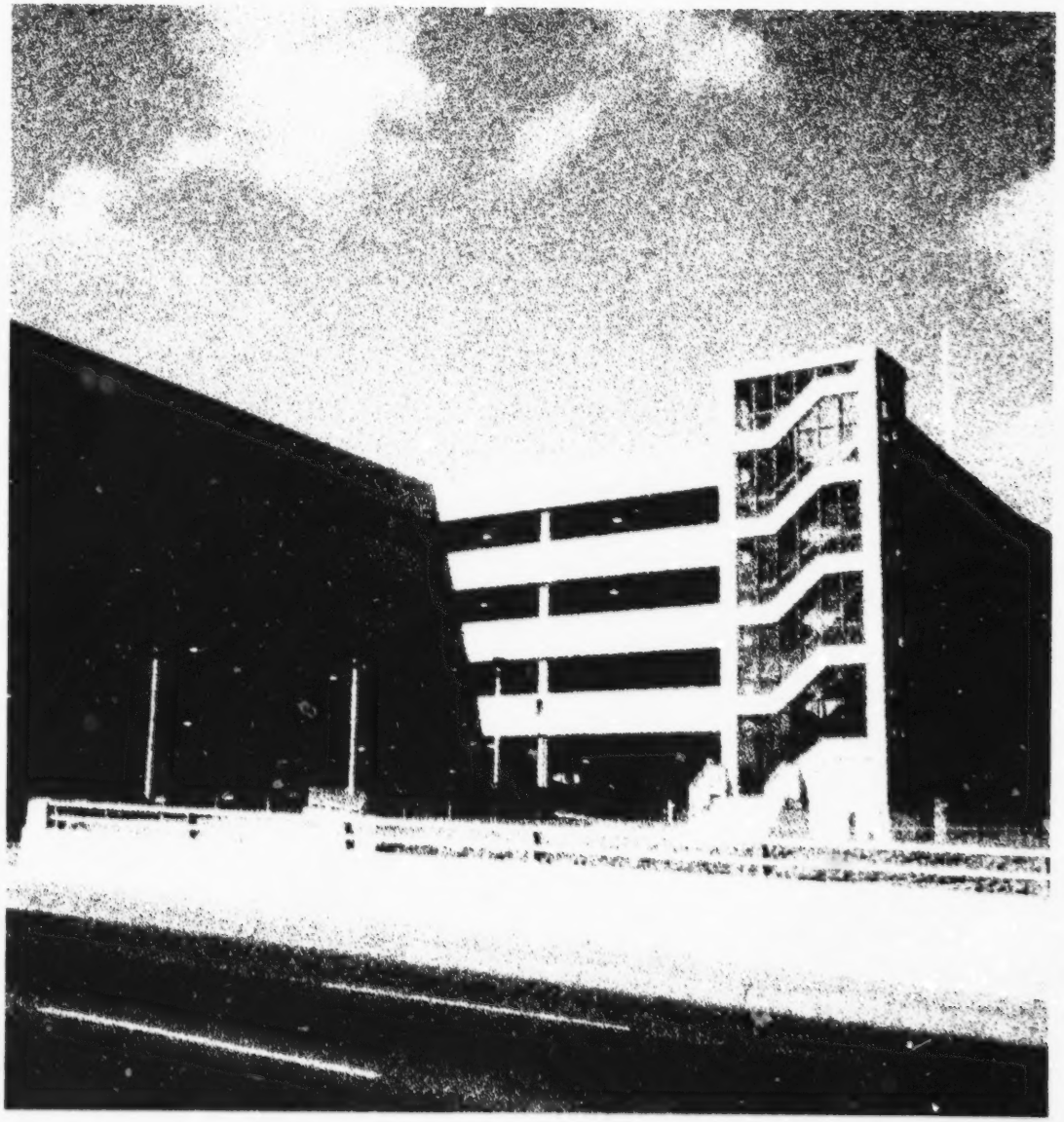
*Source: Downtown Area Exchange Newsletter, New York, N.Y., June 1, 1984

4.0
PARKING SUPPLY

In the previous chapter, the factors affecting parking demand for various types of commercial land uses and shopping centres were discussed. A fundamental assumption in the discussion was that ample parking supply to satisfy demand was always available. However, parking supply itself is the single most important factor impacting demand levels. In other words, optimum levels of parking demand can only be established if ample convenient parking is available to satisfy that demand.

If the parking supply is reduced, poorly located or too costly, it will limit potential demand. Parkers will be diverted to other locations offering better facilities. This situation can result in business loss and loss of municipal revenue, which is the reason why adequate parking supply is so vital to interests of both the business people and the municipality.

In this chapter the key supply factors and some options for each are reviewed. They are the ownership, type, and location of parking facilities.



4.1 PARKING FACILITY OWNERSHIP

Parking is typically provided by a developer, property owner, or the municipality. The objectives of the municipality and the private sector might differ with respect to the supply of parking. For example, a municipality may provide parking in situations where the private sector is unable or unwilling to provide spaces, or where the objective may be to control the prices charged. The private developer, on the other hand, may be more interested in providing parking to increase the attractiveness of a development or to develop a source of revenue by utilizing vacant lots.

For most combinations of development type and land use, the ownership of a parking facility is not an important issue. The ownership of parking facilities does become an issue when the developer is unable to provide adequate parking due to insufficient land or excessive cost.

The redevelopment of commercial areas is a prime example of a situation where public ownership of parking facilities is often required. This is often the result of fragmented land ownership and high costs of land in the centre. A municipal parking facility can offer the needed parking spaces for a large number of businesses in a central location. Economies of scale are such that the facility can usually be constructed more economically as well. Municipalities have also been encouraged to supply parking facilities by downtown merchants who fear losing business to suburban shopping centres.

4.2 PARKING FACILITY TYPE

There are basically three types of parking facilities:

- Surface or at-grade parking lots;
- Above-grade parking garages;
- Underground or combined underground/above-grade parking garages.

In addition to these off-street parking facilities, a significant proportion of the parking supply in small and medium size municipalities consists of on-street parking, either free or metered. The type of parking facility appropriate for any given type of development and land use depends to a large extent upon the land costs and land availability adjacent to the development.

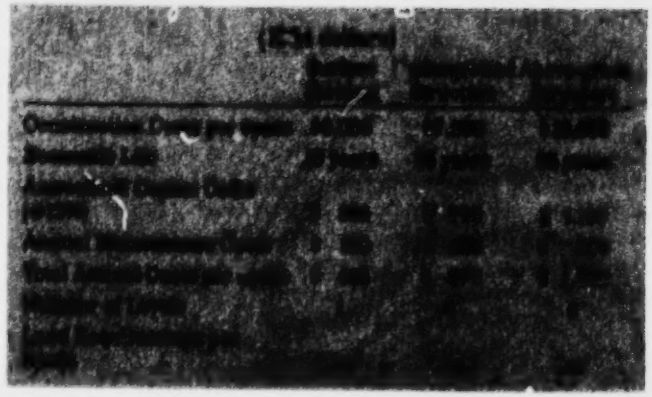
In some situations it may be difficult to provide the amount of required parking in surface facilities. Parking structures may then be needed.

4.2.1 Cost of Facilities

As one might expect, there are considerable variations among the costs of different types of facilities. Table 8 presents average costs for the three major types of off-street parking facilities. The land requirements per parking space assume that an above-ground structure would have the equivalent of four levels, while an underground structure would have a total of six levels including levels below and above the ground.

Table 8

CHARACTERISTICS BY TYPE OF FACILITY



Source: Parking authorities in Toronto, Cornwall, Belleville, and Guelph

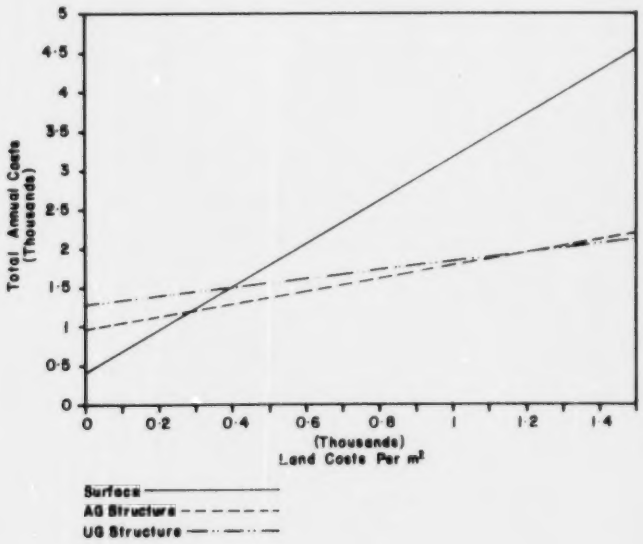
Because of column and ramp configurations, it was also assumed that the surface area required per space in a structure would be 20 percent higher than in a surface lot.

The total annual costs of owning and operating a parking facility can be calculated as a function of land costs and the interest rate paid to carry these costs. For example, if land costs are amortized over a period of 25 years at an interest rate of 10 percent per annum, and if construction and maintenance costs are assumed to be equal to the values in Table 8, a total cost curve can be calculated as a function of land costs as shown in Figure 4.

It can be seen that, for this example, if land costs were zero, the total annual costs per parking space would be under $500 for surface lots, almost $1,000 for above-ground parking structures and $1,300 for underground parking structures. The ranking of the three types of parking facilities would stay the same as long as land costs were under $280 per m^2 (or $26 per square foot). Above this point, above-ground parking structures become less expensive in terms of total costs on a per space basis than surface lots. Underground facilities

Figure 4

PARKING FACILITY COSTS



Source: Ministry of Municipal Affairs' Survey and IBI Group Ltd.

become less expensive than surface lots when the land cost reaches $400 per m² (or $37 per square foot). Above-ground parking structures remain the most cost-effective type of facility until land costs reach $1,270 per m² (or $118 per square foot). Above this point, underground parking structures again become more cost-effective given the assumption of four levels for above-ground structures and six levels for those with some underground construction.

The trade-offs between surface lots, above-ground and underground facilities would change somewhat with different cost assumptions. *For example, a three-level above-ground parking facility only becomes cost competitive with a surface lot when land costs exceed $330 per m² (or $30 per square foot).* On the other hand, if the above-ground parking structure has eight levels, land costs need only be $230 per m² ($22 per square foot). When land costs in a municipality fall below $200 per m² ($19 per square foot), a surface lot will always be less expensive than an above-ground parking structure regardless of the number of levels. This is because of lower construction and maintenance costs, if the costs in Table 8 are reflective of the conditions in the municipality.

In addition to land costs, the availability of land for parking facilities adjacent to commercial developments also has an impact on the type of structure used to supply parking spaces. Land availability is particularly an issue in commercial areas where historical development patterns are such that the only blocks typically available for parking are usually on the fringes of the downtown area. In these situations, a parking structure may be required in order to provide adequate supply of parking within close proximity to commercial developments.

4.3 PARKING FACILITY LOCATION

The location of parking spaces relative to commercial development is of critical importance. This is particularly true in small and medium-size communities where travel times on the road network within the community are relatively short and therefore, most people are not prepared to walk long distances after parking their cars. In a large urban centre, longer walking distances are acceptable once a car is parked.

If the parking spaces serving a particular development are inconveniently located, the parking demand generated by the development will seek alternatives that are more favourably located. These could include legal and illegal on-street parking spaces, as well as off-street spaces. In many situations, the supply of convenient spaces may fall short of the total parking demand. Parkers will be forced to use facilities with locations that are less acceptable or to use alternative transportation modes, such as public transit or carpooling. The demand may also apparently decrease due to the "rationing" of parking supply and business loss may

indeed occur. The desire by customers and clients for the development of conveniently located parking facilities would remain in the form of "latent" demand that would become visible if acceptable parking spaces were available.

The importance of the location of parking supply relative to demand has been brought out in a number of parking studies and actual situations. For example, in a municipality in Eastern Ontario a multi-level parking garage owned and operated by the City has been underutilized since its opening because the commercial developments that it was built to serve are two to three city blocks away from the parking garage. At the same time, downtown merchants successfully lobbied the City to maintain on-street metered parking in the core area, even though this parking caused considerable road congestion on the main streets of the City. A similar situation appears to exist in another municipality where a 1982 planning staff report indicated that, although the overall supply of parking spaces in the downtown exceeded the overall demand for these spaces, the distribution of supply and demand were not matched. As a result, demand compared to capacity conditions were far from uniform for the different parking facilities in the downtown.

Parking spaces provided by a municipality include on-street or curb parking spaces and off-street spaces. Typically, the off-street spaces are concentrated in the downtown area of the municipality. In addition, the utilization of on-street spaces is higher in the downtown area compared to other areas of the municipality.

Table 9 summarizes the distribution of downtown parking spaces by on-street versus off-street municipal, privately operated and customer/private spaces. As population size increases, there is a greater reliance on off-street spaces and on spaces provided by the private sector. Comparable data for more recent years is not available for the Province. Recent

Table 9

ONTARIO DOWNTOWN PARKING SUPPLY

CHARACTERISTICS	POPULATION RANGE	NUMBER OF (CBD) CENTRES	ON-STREET SPACES	OFF-STREET SPACES			
				MUNICIPAL	PRIVATELY OPERATED	CUSTOMER & PRIVATE	TOTAL
Average Number Parking Spaces per Municipality	Under 10,000	10	410	267	0	223	900
	10,000 - 25,000	29	440	278	29	423	1,170
	25,000 - 75,000	17	625	445	35	681	1,786
	75,000 - 110,000	7	705	953	250	1,067	2,975
Percent Distribution	Under 10,000	10	45.6%	29.7%	0 %	24.8%	100%
	10,000 - 25,000	29	37.6	23.8	2.5	36.2	100
	25,000 - 75,000	17	34.8	24.8	1.9	38.5	100
	75,000 - 110,000	7	23.7	32.	8.4	35.9	100
Parking Supply Per 1,000 Population	Under 10,000	10	45.2	29.5	0	24.6	99.3
	10,000 - 25,000	29	26.8	17.0	1.8	25.8	71.4
	25,000 - 75,000	17	13.9	9.9	0.8	15.2	39.7
	75,000 - 110,000	7	7.6	10.3	2.7	11.5	32.1

Source: Most recent data (unpublished) from the Ministry of Transportation & Communications. 1972

information from Sault Ste. Marie indicates a similar situation. Thus, it is likely that the following two characteristics still hold true:

- Smaller communities provide a greater proportion of their total parking supply through on-street spaces when compared with larger municipalities;
- Smaller communities provide a greater number of parking spaces per capita in their downtown cores when compared with larger municipalities.

5.0
MUNICIPAL ROLE AND POLICIES

It is difficult to conceive that a municipality would have no involvement in parking matters. The degree of involvement can, however, vary considerably. At a minimum, a municipality would set parking requirements for various land uses, and provide and maintain on-street parking. In larger communities, the municipality plays a major role in the provision, location, control and management of parking. Municipal policies can be (and are) used not only to ensure that adequate parking is provided, but also to ensure that other community objectives, such as economic viability of an area or reduced traffic congestion, are also achieved in the best possible balance. To this end, policies should be carefully formulated and monitored.

In this section, the major areas of municipal involvement in parking matters are reviewed. They are the regulation, supply, financing and management of commercial parking.

5.1 REGULATION

Most municipalities have zoning by-laws that establish parking standards for different types of development. These by-laws often are developed without the benefit of a proper parking study and, in many cases, are based on by-laws and standards borrowed from other municipalities. Developers are required to comply with these standards.

Standards usually specify minimum parking requirements. Many developments, such as suburban shopping centres and banks, usually provide parking area more than the minimum to ensure a better level of service.

However, it is important that by-law requirements are properly established. Excessive regulations could affect the economic or physical viability of a proposed development, whereas insufficient parking requirements without proper controls could create severe problems, such as traffic hazards and nuisance for the surrounding area.

In the C.B.D. or elsewhere in the community a municipality may choose to have reduced standards, no parking

requirements, or alternate arrangements such as cash-in-lieu of the required parking. In such cases, the municipality will have to play a much stronger role in the supply and management of parking.

5.2 SUPPLY

The municipal role in parking supply determines to what extent the parking requirements for a development will be met by the developer rather than the municipality. If the municipality reduces parking standards to something below the expected demand, the excess of demand over supply will spill over to adjacent areas or will be eliminated through the rationing of available parking spaces.

Municipal involvement in the supply of parking spaces generally occurs when there is a perceived problem of inadequate parking, particularly in downtown areas. Inadequate parking often reduces the attractiveness of retail developments in the core area and lessens their competitiveness with suburban malls. In cases where parking is seen as a significant issue, there is a great impetus for municipal involvement. On the other hand, if there is an adequate supply of conveniently located parking in the downtown area, the level of municipal involvement generally remains low.

A municipality should review its own situation in light of the potential impact that various parking supply decisions will have on the overall effectiveness of its parking program. The important supply considerations are:

- Direct municipal involvement in parking supply if the private sector is unable to provide sufficient parking spaces or if there is a need to influence the prices charged for parking;
- Land costs and the availability of conveniently located land to meet specific parking requirements;
- Parking facility location related to trip purpose and parking duration of the users;
- Suitable balance between on-street and off-street parking spaces;
- Provisions of a variety of parking facilities;
- Measures to handle unique local situations such as an annual snow-clearance problem or excessively hilly terrain.

5.3 FINANCING

Publicly owned parking facilities are financed by a variety of means. These include:

- Revenues generated by off-street facilities, on-street meters, and violation payments;
- Parking reserve funds;
- A parking levy or business tax specifically to pay for parking facilities;
- General tax revenues or debentures issued by the municipality;
- Subsidies from local business associations who will benefit from the provisions of additional facilities;
- Payments made by developers in lieu of providing all the parking spaces required by municipal by-laws;
- Various combinations of the approaches listed above.

Self-financing of municipal parking facilities is potentially viable in many smaller communities, because the gap between expenditures and revenue is much less for smaller municipalities. Figure 5 presents the average annual revenues and expenditures on parking for municipalities of different sizes. As shown, expenditures are greater than revenues in all cases. However, the gap is less significant for smaller municipalities. In a small municipality, therefore, cross subsidies from on-street parking revenue and violation payments may enable parking operations as a whole to be self-financing.

In small and medium-sized communities it is usually not possible to economically construct *parking structures* (See Figure 4) since the revenues required per space are typically in excess of the charges that users would be willing to pay for parking in those municipalities. Other sources of revenue, such as special charge, i.e., Business Improvement Area (BIA) levy or payments-in-lieu are needed to meet the financing requirements.

Parking reserve funds are typically established when the parking facilities are constructed "at the expense of all ratepayers". The municipality deposits net parking revenues into the fund and the fund is used to cover debt service charges for existing parking facilities or the acquisition or construction of additional facilities. The establishment of a parking reserve fund does not guarantee that all parking revenues will be used for parking purposes. After debt service charges are met, the balance of the fund revenues may be used for other municipal purposes.

The practice of receiving payments-in-lieu of providing parking spaces is being used by a number of larger communities. However, its use is less widespread among smaller municipalities. This practice is often applied when it is not practical for a developer to meet the total parking needs of his building. One of the problems associated with payment-in-lieu programs is that there is often no guarantee that a municipality will use the payments it receives to provide parking spaces in close proximity to the development from which the payments were received.

5.4 MANAGEMENT AND CONTROL

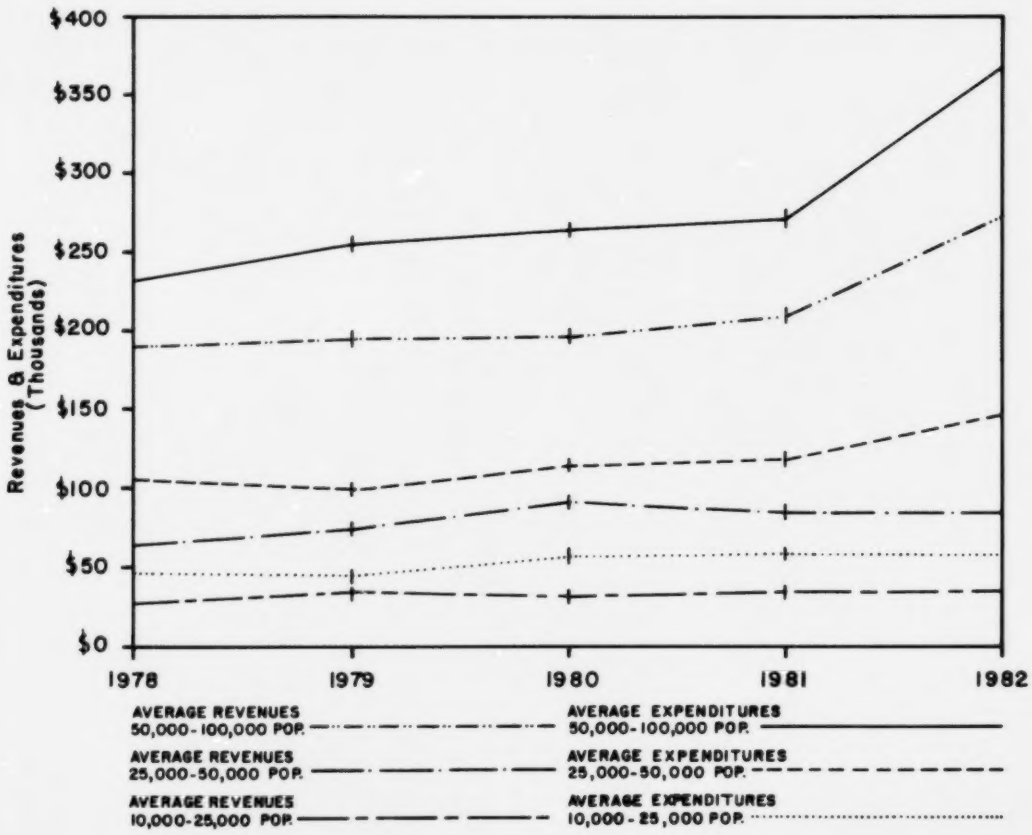
Even if adequate parking requirements are estimated and provided for, problems may arise if management and control of parking is poor. Moreover, proper management and control techniques should save the municipality and the developers significant money and space, as well as mitigating some of the most common parking problems encountered in many communities. The role of a municipality in this area should be a very strong one. Sound parking policies with proper management are key to having vibrant and successful commercial areas in any municipality.

The subject of management and control is an extensive one. The key factors are outlined below:

- Establishment of priorities: facilities/spaces for short-term parkers should be increased wherever possible and restricted for long-term parkers. Shoppers should have preference over others, because they bring in the needed revenue.

Figure 5

PARKING REVENUES AND EXPENDITURES



Source: Ontario Municipal Analysis and Retrieval System (MARS)

- Use land efficiently: very small car lots are generally inefficient. Merging properties to create larger lots will increase supply per unit of space. Also design changes can be used to accommodate larger and smaller cars more efficiently.
- Control parking time limits: Both the duration of parking and the establishment of periods of the day when parking is allowed at key locations can be effectively used to encourage users vital to the area and discourage others. For instance, parking can be banned at peak periods to allow speedy and safe movement of traffic.
- Determine a suitable pricing policy: This would enable the municipality to discourage non-essential parkers by, for instance, placing a higher parking fee on the most convenient spaces.
- Signage: Proper signage and the routing of traffic should be well thought out. Costly spaces will remain unused if people have difficulty finding them.
- Involve special interest groups: Decision-making should involve special interest groups, such as BIA's. The liaison should occur on an on-going basis in monitoring policy decisions.
- Provision for the handicapped: Both provision and enforcement is needed to allow handicapped access to priority parking. This also has design implications.
- Budgeting: Careful budgeting and control is a must in achieving parking objectives. Keeping a separate account for parking, such as a parking reserve fund, can provide for easy monitoring of revenue and expenditures.

6.0
PARKING CONSIDERATIONS FOR A CENTRAL BUSINESS DISTRICT (CBD)

Parking supply and management in the C.B.D. is far more complex than in commercial areas outside the core area. Specific problems, such as high cost of land, traffic congestion and access generally result in a reduced parking supply. Some of the demand is sometimes left unsatisfied.

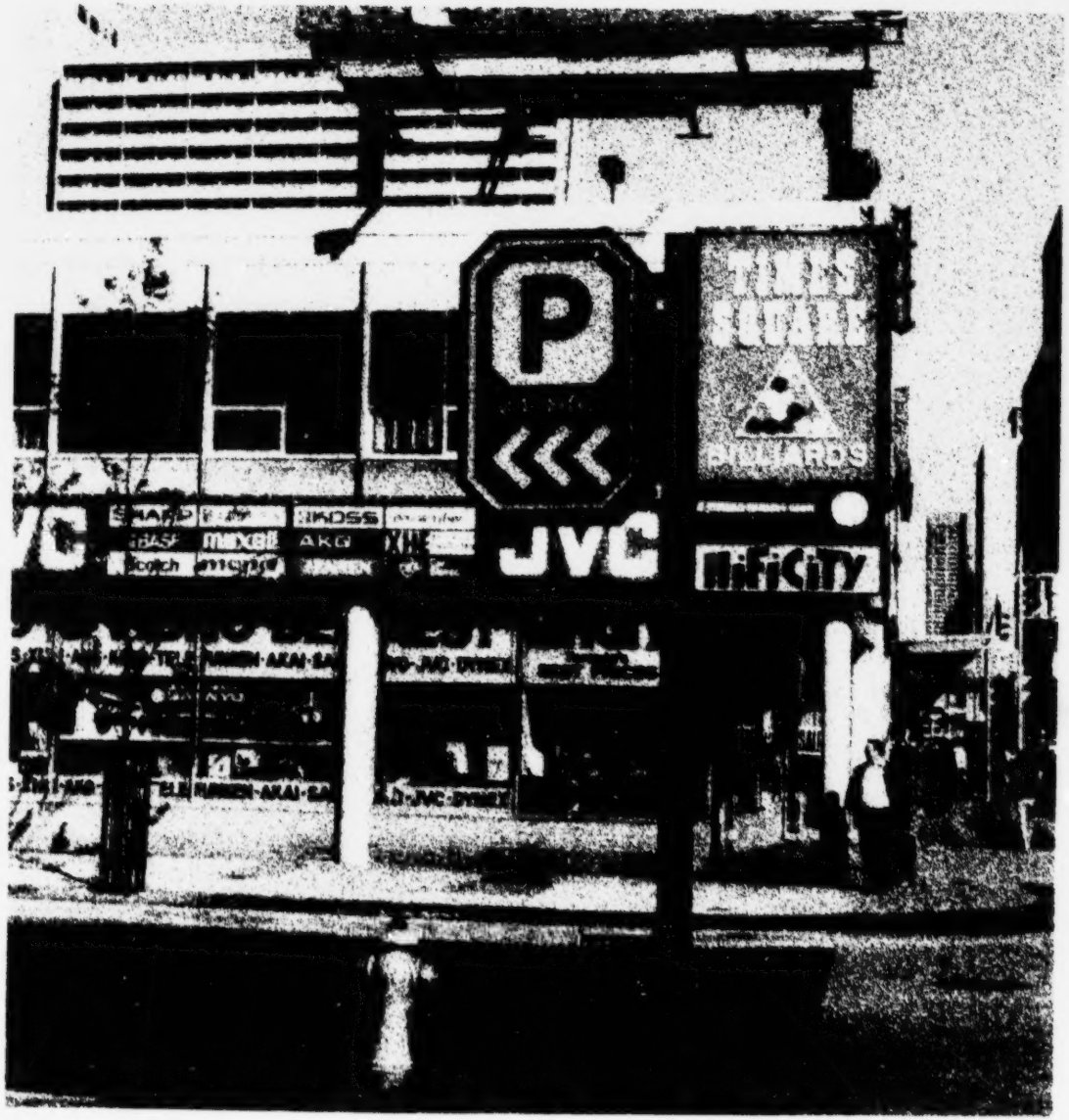
The provision of parking in the C.B.D. is not a matter of simply meeting or satisfying anticipated demand. It is usually a matter of regulating the demand by careful management and planning to create a desired balance between provision of parking and other considerations which may be specific to a particular C.B.D.

6.1 MAIN ISSUES

The main issue is the health and viability of the central area, and adequate parking is essential to the economic health and efficient operation of a downtown area.

In a small municipality (10-15,000) it is normally possible to accommodate anticipated parking demand by careful budgeting, proper management, traffic control, appropriate location and design. As the C.B.D. grows in size, it becomes increasingly difficult to provide for anticipated demand. It becomes more a question of providing enough commercial parking to keep the C.B.D. viable and attractive. Specifically, parking management and control are even more critical and municipal involvement in parking provision and control usually increases.

In larger municipalities, however, special opportunities exist to significantly reduce parking demand in downtown. For example, the potential for public transportation and shared use parking can be fully exploited in the larger central area. The result may be reduced parking demand and even increased attractiveness of the area, if appropriate policies are adopted and implemented.



There are other important issues specific to a C.B.D. Parking standards in the core of many medium to large municipalities may be reduced or exempted. The needs of the parkers, though, should be considered in relation to other community objectives and cost. A municipality must carefully weigh the implications of reduced requirements or total exemptions.

For example, if a community places a maximum limit on the parking spaces to be provided in its central area, the implication of this policy is that long-term parking cannot be guaranteed by developers to their tenants. However, it should encourage increased use of public transit. On the other hand, by not allowing enough parking, the city may lose some of the development it wants to attract. There is also the danger that surrounding residential areas may be used for commuter parking. It is, therefore, vital that any special requirements applied to a C.B.D. must be very carefully formulated and monitored.

In many larger municipalities, redevelopment in the C.B.D. may be exempted from parking requirements. Where this does not occur, there are three main alternatives: providing on-site parking, paying cash-in-lieu of parking under Section 39 of the *Planning Act* or securing a minor variance to allow fewer parking spaces than the zoning by-law requires. The municipality should encourage the most appropriate approach when dealing with a development proposal.

A municipality needs cash-in-lieu payments in order to provide centralized parking to serve many developments in the core area. Centralization is usually more efficient than fragmented individual parking projects. Also it makes small parcels suitable for development because space is not needed for parking.

However, it is not easy to formulate and manage a cash-in-lieu policy. First of all, a proper pricing formula needs to be developed. If the price is set too high, it could discourage development, thus defeating the objective of strengthening the core. If it is too low, the parking budget may run a deficit requiring transfer of funds from other sources.

It is also important to win the trust of the developers in formulating and implementing a fair cash-in-lieu policy. Developers should have the assurance that parking will be provided close to their development; otherwise, cash-in-lieu payments will simply be considered a development tax or a fine.

Another C.B.D. issue is on-street parking. Municipal policies can affect the supply of these facilities for all types of development. These policies are of particular importance in C.B.D.'s and older commercial strips where the supply of conveniently located off-street parking is often limited. The main problem with on-street parking is traffic congestion, especially in the morning and evening peak hours and, in some municipalities, noon hours as well.

The disadvantages of providing on-street parking, such as roadway congestion and hazards to pedestrians, normally outweigh the advantage of convenient access. However, it is usually necessary to provide on-street parking to meet the wishes of merchants to attract shoppers and maintain the attractiveness of a shopping strip.

Policies aimed at controlling on-street parking could require installation of meters, setting of time limits and parking prohibition at peak times. Another consideration would be to discourage long-term parkers (for example, employees) from using on-street parking.

In general, the total supply of parking in a central area must be controlled to keep it at a desired level. The main problem is to determine this level. As a general rule the supply increases with the size of the centre, but at a diminishing rate. Table 10, which is derived from a study by the Ministry of Transportation and Communications, shows average parking supply in various centres. The lower per capita space supply in larger cities results from the lower per capita C.B.D. trip attraction, greater use of public transportation and higher land costs.

The main considerations in the provision of parking in C.B.D.'s can be summed up in the following:

- Determination of the appropriate amount of commercial parking space in view of the size, type and physical nature of the central area;
- Division of parking spaces into short-term (shoppers) and long-term (employees) parking. Wherever possible, the use of public transportation and other measures, such as car pooling, should be encouraged for employees;

- Policies should be formulated to get the desired mix (municipal, commercial and owner-operated parking supply);
- Costs related to provision and maintenance of parking;
- Operation and administration of parking.

Table 10

PARKING SPACES VS. SIZE OF CENTRE

	700	7
	8,000	3.5
	19,000	1.9

Source: *Ministry of Transportation & Communications Unpublished Data*, 1972

7.0
DESIGN CONSIDERATIONS

Design is important to the development of commercial parking areas to ensure convenience, ease of circulation and safety. It also provides for adaptability and minimizes the impact of parking areas on surrounding land uses. In this section, some basic design considerations are identified: layout and signage for parking facilities, location and access, internal circulation and landscaping.

7.1 TYPES OF PARKING FACILITIES

The type of parking facility appropriate for a development will depend upon the availability and cost of land and, in the case of on-street parking, the willingness of the municipality to permit that type of use.

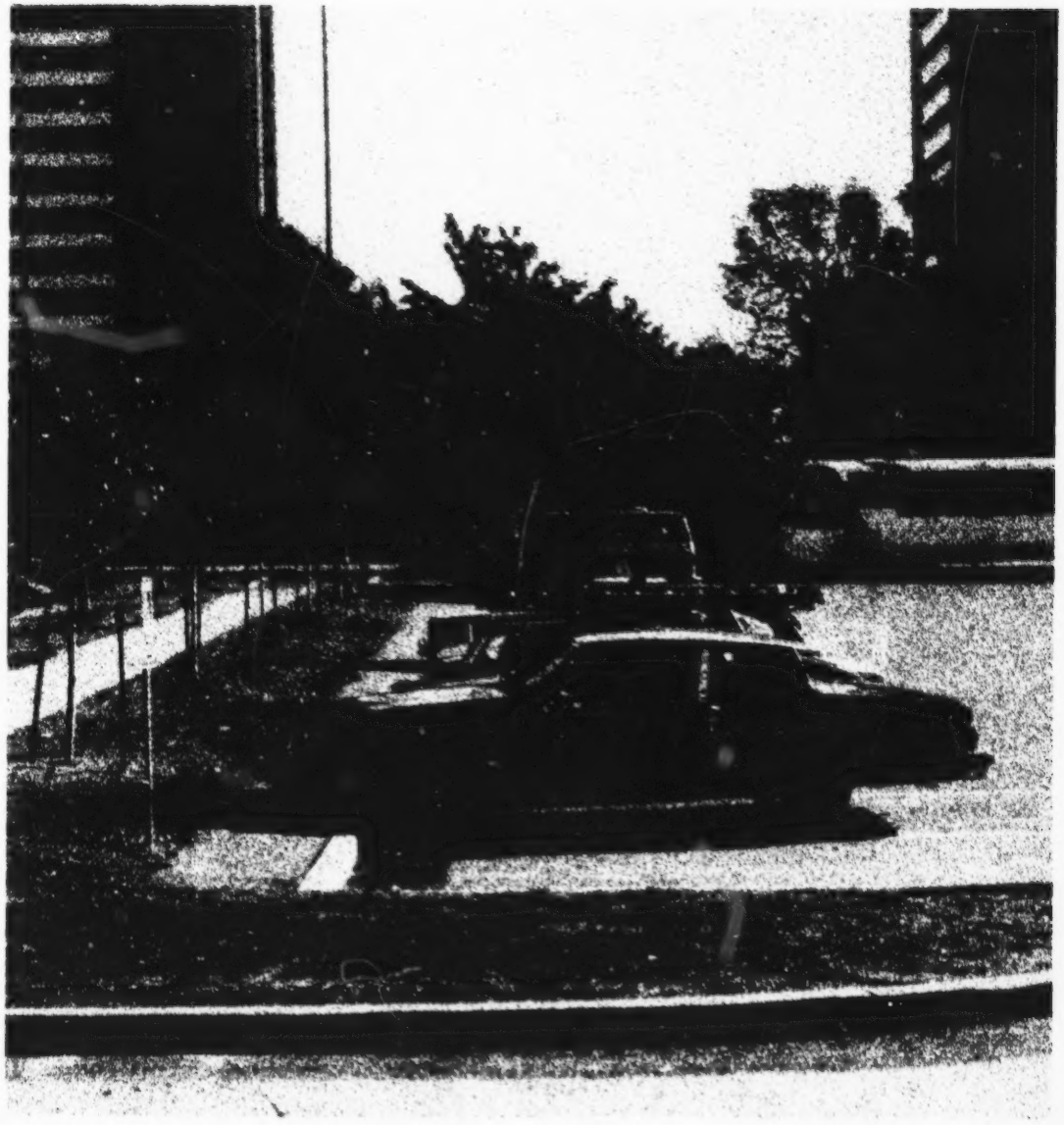
The types of parking facilities (listed in order of user preference) include: curbside parking, surface parking lots and multi-storey (above and/or below grade) parking garages. The key characteristics of each parking facility type are set out below.

Curbside parking

- The two main types of curbside parking are parallel and angled parking.
- The parallel type requires less right-of-way space and is the safest for drivers, but it provides fewer spaces and causes more traffic delays.
- The angled type is easier to enter and provides more parking, but it is not as safe to leave from and requires more right-of-way space.

Surface parking lots

- The surface parking lot represents the most easily adaptable type of parking.



The surface lot is appropriate for all types of commercial developments located where land for parking is abundant.

- The grouping of small, separate lots will increase the efficient use of space.

Multi-storey garages

- The main types of garages are: separate, above or below ground structures, and shared-use developments that include parking and other uses (office, retail) within the same structure.
- The garages are usually developed where the required land for parking is not available to meet the anticipated demand within an acceptable walking distance (usually in the downtown of larger municipalities).

7.2 LOCATION OF PARKING FACILITIES

The proper location of parking in the design of a development will ensure convenience for vehicle and pedestrian circulation. This will require consideration of the following:

- The customer parking areas should be as close as possible to the entrance of the building. The customer parking areas should also be separate from employee parking. The separation would prevent employees (long-term users) from using the spaces intended for customers (short-term users).
- The location of the parking area should not impede access to buildings for deliveries, services and pedestrians.
- The parking area should not be located directly facing into an adjacent habitable room, such as bedroom, living room, family room, kitchen or a bathroom.
- The handicapped parking spaces should be located as close as possible to main public entrances and walkways.
- The acceptability of walking distances between a parking space and the final destination is a function of trip purpose, type of parking facility, length of time parked and type of shopping centre. For example, in Table 11 it can be seen that the longer that a person intends to park, the further the average distance walked.

Table 11

AVERAGE WALKING DISTANCES

Variable	Average walking distance
Trip purpose	
– shopping	175m (574 ft)
– personal business	140m (459 ft)
– work	205m (672 ft)
– other	115m (377 ft)
Parking facility	
– on-street	120m (394 ft)
– surface lot	230m (754 ft)
– garage	215m (705 ft)
Length of time parked hours	
– 0.5 - 1.0	135m (443 ft)
– 1.0 - 2.0	155m (508 ft)
– 2.0 - 5.0	180m (590 ft)
– over 5	225m (738 ft)
Type of shopping centre*	
– Regional	155m (508 ft)
– District	90m (295 ft)
– Community	60m (197 ft)

Sources: Highway Research Board, *Parking Principles*, Special Report 125, (1971).

*City of Scarborough, *Commercial Office Parking Study*, 1977

7.3 LAYOUT OF PARKING FACILITIES

Careful design and layout is essential to the efficient and safe use of a parking facility. A facility should, at the minimum, provide for:

- Proper access and circulation;
- A mix of car sizes;
- Parking spaces for the handicapped;
- Appropriate markings, signs and landscaping.

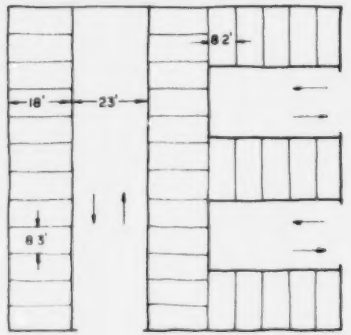
7.3.1 General Guidelines

The following standards are commonly used across Ontario as a basis for parking facility design:

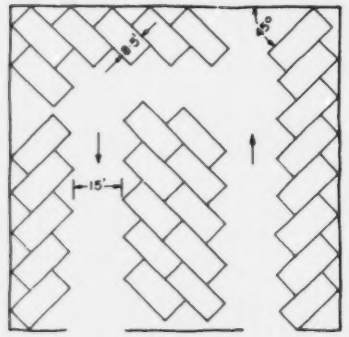
- A standard parking space in a 90° arrangement should be 2.6 m (8.5') by 5.8 m (19').
- The minimum width for one-way aisles is 3.3 m (11') and for two-way aisles is 7.3 m (24').
- A parallel parking space for a standard size car should be 2.5 m (8') by 6.5 m (21'). The length may be reduced to 6 m at an unobstructed end of row.
- In designing a parking facility consideration should be given to need for additional space for snow accumulations (especially in northern municipalities) and for garbage collection and disposal.
- When designating curbside parking space, competing uses, like bus stops and waiting areas, need to be accounted for.
- The overall floor area required for the same number of spaces in a parking structure will be up to 20 percent higher than for a surface lot. The added space is needed for column and ramp configurations.
- The length of time the user intends to be parked should be accounted for when determining the size of the parking area. Facilities for long term users have very low turnover rates and can therefore be designed with smaller parking spaces and less manoeuvering room. On the other hand, facilities at retail centres, especially food stores where there is a heavy turnover, require greater stall and aisle widths.

Figure 6

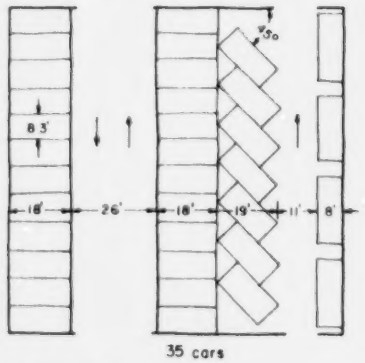
ALTERNATIVE CIRCULATION PATTERNS



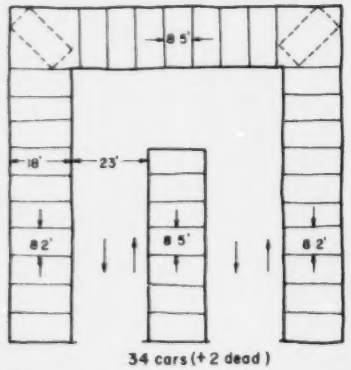
PATTERN A:
This provides the highest number of parking spots, but three dead ends and three access points are required. These two features should be minimized to avoid inconvenience and congestion.



PATTERN B:
This is a good circulation pattern. However, the convenience of the angled stalls is provided at the expense of the number of parking spaces.



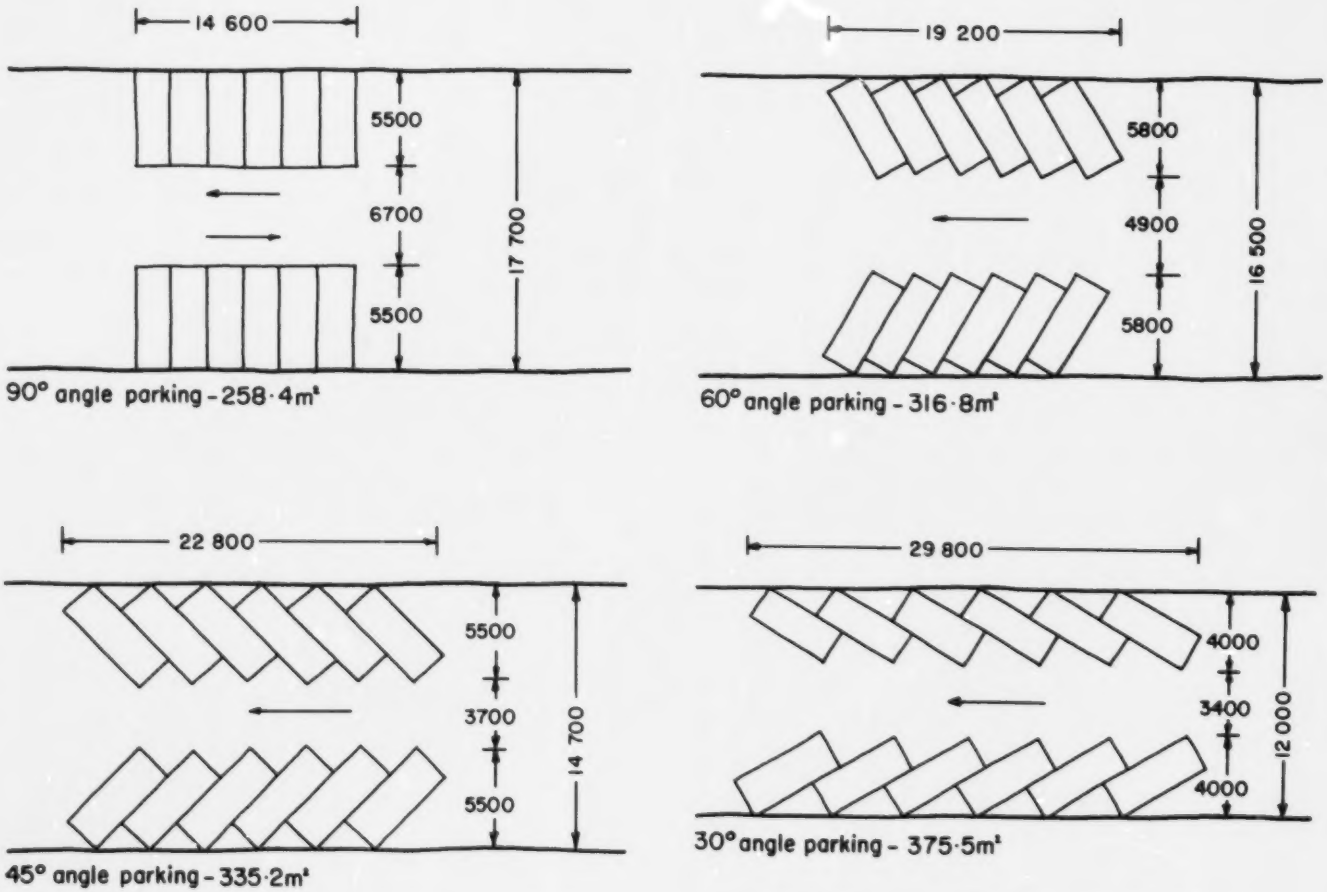
PATTERN C:
This arrangement is too complicated, with four access points required yet no benefit in terms of an increased number of spaces.



PATTERN D:
This is a good, simple pattern with no deadends and an adequate number of spaces.

Figure 7

ANGLE OF PARKING



Source: Central Mortgage and Housing Corporation, *Parking Advisory Document*, Ottawa, 1980

7.3.2 Access

The careful design of access into and through a parking facility will encourage use by customers and provide for the safety of pedestrians. This can be achieved in a number of ways:

- The use of steep driveways to multi-level parking garages should be avoided. A slope steeper than 1:5 is excessive.
- The access routes should incorporate convenient drop-off points adjacent to building entrances, where possible.
- The access to customer parking areas should be identified by signs.
- Pedestrian walkways within lots are not necessary unless traffic volumes are high or a main pedestrian route crosses the site.
- Where pedestrian routes cross parking areas, they should be clearly marked, well lit and designed for easy use by wheelchairs, carriages and shopping carts.
- The accessibility of off-street parking areas can be improved by encouraging rear entries to shops, the paving and lighting of alleys for pedestrian use and developing public arcades through shops on long blocks.
- The lot access points should ensure convenience of movement and minimize vehicle congestion, both leading into and out of the circulation pattern of the parking lot.
- The use of signs to delineate areas in large parking lots provides for more direct pedestrian circulation.

7.3.3 Circulation

The circulation pattern should be designed to ensure ease of movement and to minimize vehicle congestion. A number of factors will influence this:

- The circulation pattern of parking lots should be simple and straightforward, with minimum use of T-junctions and dead-ends (see Figure 6).
- A major factor influencing the circulation pattern of a parking area is whether right-angled or diagonal parking is used (refer to Table 12 and Figure 7). Site size and shape will play a major role in choosing which alternative is better in the circumstances.
- With right-angled parking, two-way aisles can be used which provide more flexibility, less confusion, greater visibility and a large pedestrian area. Also, more spaces can be provided in a given area with right-angled parking.
- With diagonal parking, it is easier to park, there is less likelihood of traffic congestion, and a narrower bay width and stall is possible.

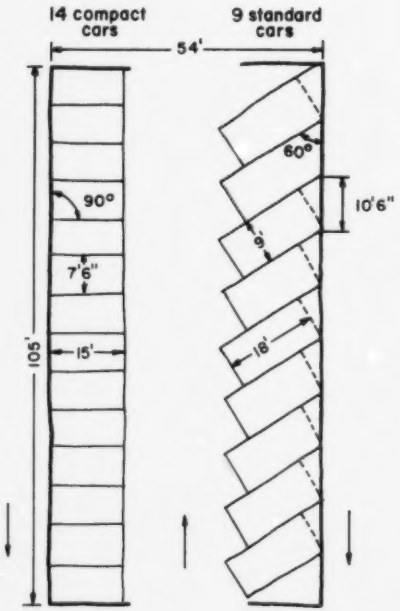
7.3.4 Large vs. Small Cars

The designer of new parking facilities should account for the probable shift towards smaller cars in the long term. There has already been a shift in the size of cars. The large cars of today would have been called mid-sized cars five to ten years ago. These changes are important, particularly for parking structures, which have a life expectancy of 25 to 30 years and are difficult to modify. To provide for a mix of small and large cars, the following approaches should be considered:

- Segregate the cars into two separate areas or provide separate rows for full size and for compact cars. The ratio of smaller stalls should be 20 – 30 percent of total.
- The Drachman System (refer to Figure 8): The advantages of this system are that it provides over 25 percent more spaces than a facility designed to accommodate only large vehicles and the large spaces can be converted to smaller ones in the future. The conversion issue is especially important for parking structures.
- Universal downsizing entails reducing the size of all stalls. A reduction of up to 20 percent is feasible. There might be some misuse by larger cars, but generally the approach works.
- Downsizing for employee parking. The size of employee parking spaces can be reduced because cars are parked all day. Also, employees using small cars can be allocated specific stalls for their exclusive use.

Figure 8

DRACHMAN SYSTEM OF PARKING
(Small and large cars in one bay)



Basic Concept
The Drachman System uses 90-degree angle spaces for small cars in the same bay in which 45- or 50-degree angle spaces are provided for large cars.

Source: Urban Land Institute, "*Parking Requirements for Shopping Centres,*" Washington, D.C., 1982

Comparison of Drachman System to Standard System

Drachman System	
Standard Spaces	9
Compact Spaces	14
Total	23
Standard System	
Total Standard	18
Increase in Spaces Drachman over Standard	5
Percentage Increase	28%

Table 12

RELATIONSHIP BETWEEN ANGLE OF PARKING, STALL DEPTH, AISLE WIDTH AND MODULAR WIDTH (ALL IN MM) FOR STANDARD SIZE CARS

Angle of Parking	Aisle Width	Depth of Stall	Modular Width
30°	3400	4800	12 600
45°	3700	5500	14 700
55°	4300	5800	15 900
60°	4800	5800	16 500
65°	5200	5800	16 800
70°	5500	5800	17 100
90°	6700	5500	17 700

For small cars, aisle width can be reduced by 600 mm and stall depth can be reduced by 600 mm. For large cars, add 300 mm to each dimension.

7.4 PROVISION FOR THE HANDICAPPED

Separate parking stalls for the handicapped should be provided in the layout of parking areas. There are three issues to be dealt with:

- Percentage of spaces to be reserved;
- Size of the stalls;
- Location and design.

A general guideline for the number of handicapped spaces is one percent of the total in each lot, with a minimum of one stall per lot. If the lot is adjacent to a facility serving the handicapped, like a hospital, the number should be increased to a maximum of 5 percent.

There is no Ontario information available on commercial parking requirements for the handicapped. But a recent U.S. survey of 50 states shows that there is little consensus about the appropriate number of handicapped parking spaces needed to serve new development. The survey shows a range from no requirement in fourteen states to requirements as high as 3 – 5 percent of the total spaces in others. Eight of the states surveyed use a sliding scale standard shown in Table 13.

Table 13

PARKING REQUIREMENTS FOR THE HANDICAPPED

TOTAL PARKING SPACES	NO. OF SPACES FOR THE HANDICAPPED
Less than 25	1
26 – 50	2
51 – 75	3
76 – 100	4
101 – 150	5
151 – 200	6
201 – 300	7
301 – 400	8
401 – 500	9
501 – 1000	2% of the total
over 1000	20 + one percent over 1000

Source: Reprinted with permission from: Zoning News, April, 1985, copyright 1985 by the American Planning Association, 1313 E. 60th St., Chicago, IL 60637.

The spaces should be at least 3.9 m (13 feet) wide, but when two spaces are located together 6.4 m (21 feet) in total can be used.

Handicapped parking spaces should be located as close as possible to a building's accessible entrance. More specifically, an effort should be made to locate handicapped parking spaces as close as possible to accessible elevators, ramps, walkways and building entrances.

It is also important *not* to locate such spaces in spots where wheelchairs will be required to pass behind cars other than

their own. Appropriate pavement markings and signage are essential to clearly indicate the location and reserved nature of handicapped parking as shown in Figure 9.

7.5 LANDSCAPING OF PARKING FACILITIES

The landscaping of a parking lot is important not only for aesthetic reasons but also for practical purposes, such as control of noise, wind, erosion and glare.

Natural features of a site, such as trees, should be preserved and incorporated as much as possible into the siting and design of parking facilities (both lots and structures). Landscaping can be used to break a large parking area into attractive identifiable areas. Figure 10 shows one type of landscape divider.

The choice of paving colours and materials along with the selection of trees and shrubs should be made in view of their attractiveness, resistance to vandalism, suitability to the site and maintenance costs. They can also be used to add texture and colour to large monotonous surfaces such as walls.

Figure 9

Provisions for the handicapped

Proper buffering, with a berm, trees or shrubs, can be used to screen parking lots from the view of residential units, as shown in Figure 11. A minimum distance of 20 feet from adjacent residential properties should be maintained and would allow for such buffering treatment. Adjoining properties should be protected from the glare of reflected light from car bodies. Low level lighting and strategically planted trees can be used to achieve this.

Landscaping can also be effectively used to minimize certain nuisances and enhance functional aspects of parking facilities.

Protection from strong winds, rain as well as control of noise and dust can be achieved by careful design techniques. Correct choice and location of trees can provide summer shading, but allow full sun in the winter. An example is shown in Figure 12.

Since full parking demand may not be realized for several years after the completion of a new commercial development,

Figure 10

Landscaped parking divider

Figure 11

A planted berm provides an effective visual and physical separation

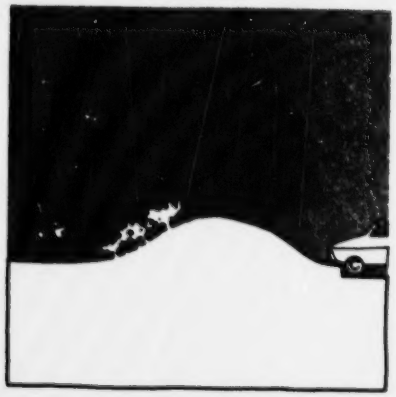


Figure 12

Use of landscaping as protection from wind, rain and noise

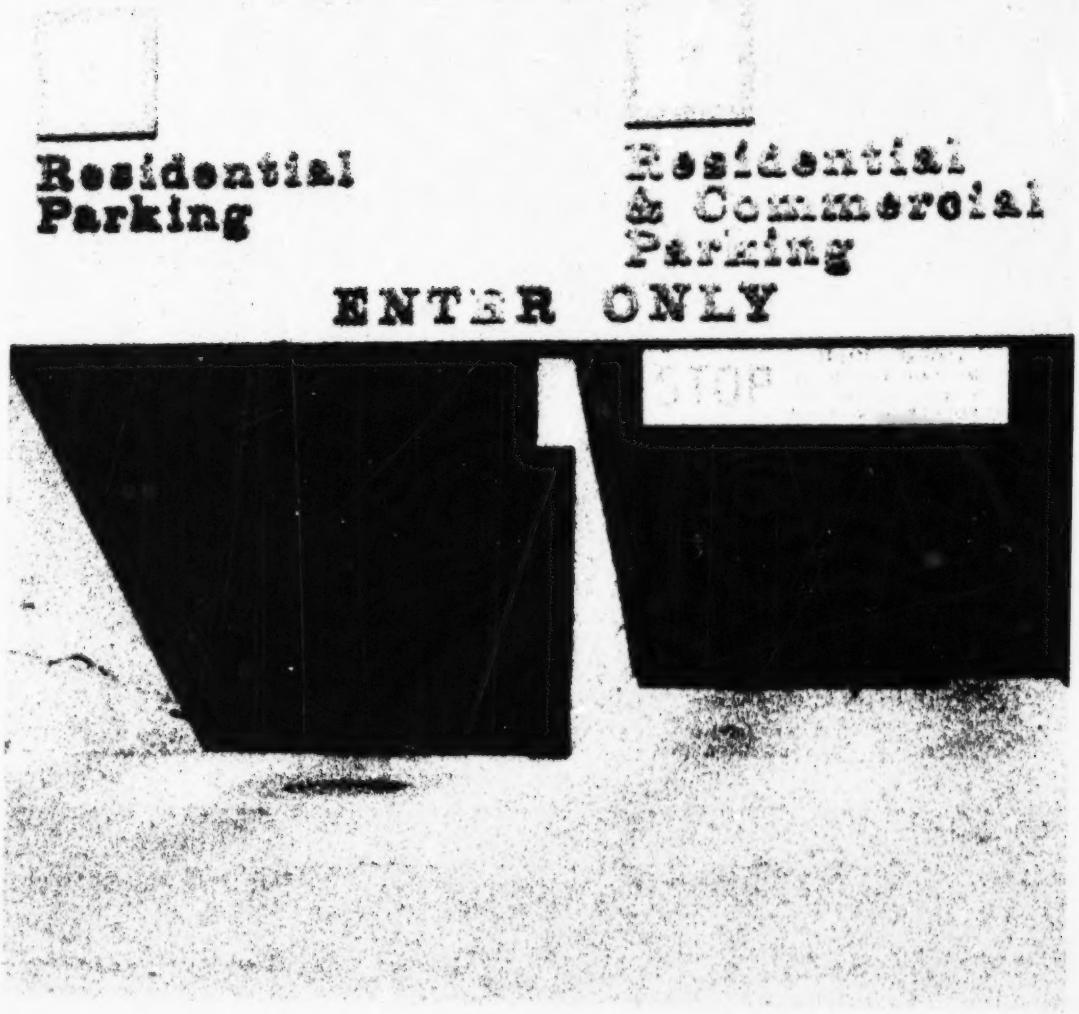
opportunities may exist to use surplus area reserved for parking to provide amenity areas for play or recreation. The design should allow conversion of amenity areas to parking when needed and vice versa.

Signs should be used to identify exits, potential hazards and special parking areas.

8.0
PARKING TRENDS

There have been many changes in parking and these will probably continue as downtowns need better or different parking arrangements, as the economy fluctuates and pressures are felt for transit, to cut pollution, to discourage congestion or to encourage retailing. This chapter reviews a number of trends based on studies in Canada and the United States. Since conditions vary a lot from one place to another, not all of the trends can be considered as universal. Local conditions should be analyzed to see if they apply in a particular situation. Nevertheless, major trends to consider are:

- Changes in development patterns,
- Downsizing of cars,
- Changing parking demand patterns,
- Innovative financing methods,
- Changes in pricing policies,
- Changes in on-street parking prices,
- Parking for the handicapped.



8.1 CHANGES IN DEVELOPMENT PATTERNS (Mixed Use Developments)

There is a trend, particularly in larger commercial centres, towards including a variety of land uses within a single commercial development. Usually office or retail space represents the largest single component of the development, while the remainder of the development may be comprised of ancillary uses such as restaurants, cinemas, hotels or other services. In some instances there is also a residential component.

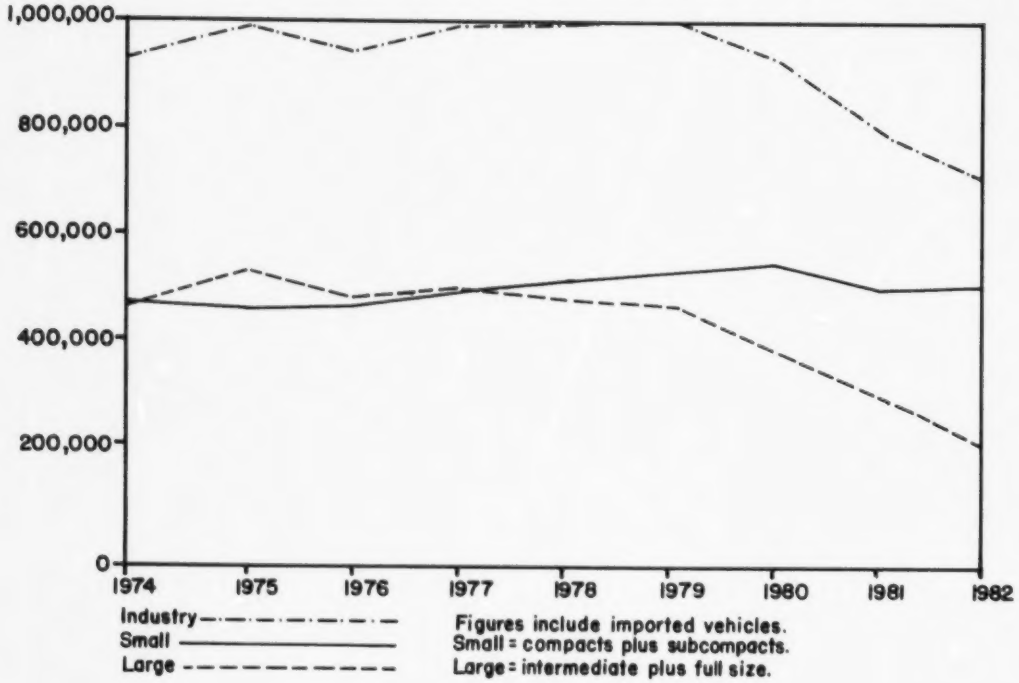
One of the key components of such developments is the provision of adequate, conveniently located parking facilities. If space for convenient parking is not available or if there is no reduction in the total parking requirements of such

developments due to their mixed-use nature, there can be less incentive to go ahead with the project.

The impact of mixed-use developments on parking requirements can be quite significant. The impacts primarily result from different hours of activity (for example, for retail and office space), the different lengths of parking time by land use type, and the use of two or more facilities in a single auto trip to the development (a phenomenon called captive market effect, which has its maximum impact in downtown

Figure 13

CANADIAN NEW PASSENGER CAR SALES 1974-1982



Source: Energy Mines and Resources, *Transportation Energy Data Book*, December, 1982

situations). Some mixed-use development is also occurring at suburban shopping centre sites with hotel/motels now being incorporated into the developments. The move is a natural one because hotels get busy when shopping crowds are going home, providing excellent opportunity for shared use parking. Mixed-use developments are also getting larger in many municipalities because they are considered more cost effective and efficient in their parking requirements.

8.2 AUTOMOBILE DOWNSIZING

Larger cars still comprise about 70 percent of the total auto stock. This is likely to decrease since new models are generally getting smaller. The significant real increase in energy costs during the late 1970's resulted in a dramatic shift from intermediate and full-sized cars to compacts and sub-compacts. The impact of this shift on the distribution of vehicle sizes was sustained by auto industry efforts to down-size all of their vehicles, including those classified as intermediate and full-size, to meet government-imposed fuel economy standards.

Figure 13 illustrates the trends in Canadian new passenger car sales from 1974 to 1982. By 1982, large (intermediate plus full-size) cars accounted for less than 30 percent of the new car market. The exhibit also illustrates that the drop in large car sales was only partially off set by an increase in small car sales. Therefore, the drop in large car sales may be caused by the combination of poor economic conditions during the last few years, as well as a shift to smaller cars. A change in economic conditions could conceivably reverse the trend in large car sales. However, general down-sizing of all vehicles should result in the ability to reduce the minimum size required for an average parking space.

It should be kept in mind, when considering the trend to down-sizing of new cars, that, because of the larger size of the existing automobile fleet, trends in the size distribution of the total fleet of automobiles are less pronounced than trends in new car sales. In Ontario, large (intermediate plus full size) cars still account for over 70 percent of the existing auto fleet. This means that when new facilities are developed, the presence of the large auto should still be a major consideration.

Municipalities might consider one or a combination of the following approaches to the down-sizing of their commercial parking facilities:

- Allow re-design of parking facilities only in areas most affected by down-sizing, such as affluent suburbs;
- Down-size long term (employee) parking, but keep short-term high turn-over parking sizes unchanged;
- Use a modular car park design to accommodate varying percentages of smaller and larger cars (for instance, the Drachman system);
- Universal down-sizing is a compromise solution. The City of Toronto, for instance, had such a policy and stalls have been reduced up to 20 percent in size.

8.3 CHANGING PARKING DEMAND PATTERNS

The nature of operation for many commercial land uses is changing due to technological (computerization) and socio-economic (aging of the population) factors. The combined effect of such factors could lead to a change in parking demand patterns over a period of time. Not many studies have looked at this phenomenon; however, some evidence available from U.S. studies indicates that:

- The parking demand for medical/health centres has increased due to shorter trip duration, more out-patient facilities and a variety of services located in the same facility;
- The parking demand for office commercial use has shown a decline due to the tendency to locate on transit lines; (ride sharing);
- Parking demand for retail outlets has also shown a decrease probably due to increased use of technology requiring fewer employees.

8.4 INNOVATIVE FINANCING

The traditional methods of raising funds for parking facilities are giving way to innovative financing methods. For example, large mixed-use projects are often built and funded by public and private sectors jointly. Or lenders are getting into joint financial ventures sharing cash-flow and profits.

A variety of alternatives in loaning money are also being tried. They include variable indexed or negotiable rate loans; shared appreciation mortgages, percent-of-cash flow or pre-sale agreements. Also some developers are using the condominium approach (selling individual spaces) to finance parking garages. In general these techniques are making parking facility construction more feasible.

8.5 CHANGES IN PRICING POLICY

The major trend in pricing policies is a move towards providing priority parking at a price. Some shopping centres are introducing pay-parking for prime spaces to discourage long term employee parking and to raise additional revenues.

Other municipalities have established three or four different price zones for parking meters or garage spaces in downtown depending upon their location in relation to most desirable facilities.

8.6 CHANGES IN ON-STREET PARKING

On-street parking is here to stay. However, innovative strategies are being used to better design and handle these spaces. Municipalities are varying time limits on meters from 10 hours to 15 minutes, or they are providing all-day permit slots along with car-pool spaces. The new measures are designed to encourage development, better regulate short supply, provide needed customer parking and generate more revenue. Another trend has been to restrict parking along arterials during peak periods in the main direction of travel. These restrictions increase the capacity of the arterial, thereby reducing congestion, delay and excess fuel consumption.

The restriction of on-street parking may be disputed by local merchants who feel that on-street parking spaces in front of their establishments add significantly to their attractiveness.

The on-street parking spaces become particularly important in situations where there is an inadequate supply of convenient off-street parking. In these situations, the trade-off between reduced viability perceived by local merchants and improved traffic flow may be such that parking restrictions on the arterial roads cannot be implemented.

In smaller communities traffic volumes during the peak hours tend to be lower than those in larger communities and, as a result, restrictions to the on-street parking supply are not so critical. On the other hand, if a community has an adequate supply of convenient off-street parking in the area in question, the impact of on-street parking restrictions on local merchants will be minimal and these restrictions can be justified.

8.7 PARKING FOR THE HANDICAPPED

Provision of parking for the handicapped is a relatively recent phenomenon. The trend is towards provision and enforcement of such parking in all municipal and private parking areas. In Ontario, no set standards are in use, however, many municipalities are enacting by-laws to include handicapped parking. A discussion of handicapped parking and the results of a U.S. study are given in section 7.4.

As demonstrated throughout this handbook, the planning for commercial parking and the development of appropriate standards is not a finite activity. Local conditions should be monitored at regular intervals to assess the adequacy of parking facilities to serve the needs of parkers. At the same time, planners and other municipal officials will need to keep abreast of wider societal changes, as they may affect patterns of auto use and design of facilities.

When opportunity exists, surveys of local parking habits and commercial parking demand should be undertaken to relate parking standards directly to circumstances in a particular community.

Finally, the wise management of existing commercial parking facilities provides much scope for improvement without eating into the capital budget. New techniques, such as variable fee structures and designated employee parking areas, may increase the parking supply without acquisition of additional facilities or land.

APPENDIX

COMMERCIAL PARKING STUDY
SUMMARY OF COMMERCIAL PARKING STANDARDS

Note: These standards are representative examples. For further standards and details consult the zoning by-laws.

CITY	USE	PROVISION FOR PARKING SPACE
BARRIE	Retail	1 per 28m² GFA first floor plus 1 per 42m² GFA thereafter.
	Personal service	1 per 28m² GFA first floor plus 1 per 42m² GFA thereafter.
	Bank	1 per 28m² GFA first floor plus 1 per 42m² GFA thereafter.
	Restaurant	1 per 4 person capacity.
	Hotel	1 per guest room plus 1 per 4 person capacity in public area.
	Motel	1 per guest room plus 1 per 4 person capacity in public space.
	Theatre	1 per 16 person capacity.
	Recreational	1 per 4 person capacity.
	Museum, Gallery, Library	1 per 28m² GFA.
	Medical Clinic	5 per practitioner.
	Office	1 per 28m² GFA except in Commercial Central Area Zone -
	Commercial other than listed	1 per 46m² GFA but not less than 2.
	Mixed Use	Sum of separate use requirements.
	Exemptions	In the CBD - 75% of minimum requirements.

CITY	USE	PROVISION FOR PARKING SPACE
BRANTFORD	Furniture/ Appliance	> 232.5m² store floor area - 1 per 93m² store floor area.
	Retail	> 185m² store floor area - at least 2 plus 1 per 27.5m² store floor area.
	Bank	1 per 37m² office floor area.
	Hotel	1 per 3 bedrooms.
	Motel	1 per 3 bedrooms.
	Recreational	1 per 7 seat capacity.
	Medical Clinic	1 per 37m² office floor area.
	Office	1 per 37m² office floor area.
	Exemptions	In the CBD - 50% of minimum requirements.

CITY	USE	PROVISION FOR PARKING SPACE
CHATHAM	Furniture/ Appliance	1 per 93m² GFA.
	Shopping Centre	1 per 18.6m² GFA.
	Personal Service	1 per 10m² GFA.
	Bank	1 per 18.6m² GFA.
	Restaurant	1 per 4.65m² GFA of public area, a minimum of 10.
	Restaurant/ Take-Out	1 per 2.32m² GFA of public area, a minimum of 10.
	Restaurant/ Drive-In	Minimum of 25.
	Hotel	1 per guest room plus 1 per 9.3m² of public dining area.
	Motel	1 per guest room plus 1 per 9.3m² of public dining area.
	Theatre	1 per 5 seat capacity.
	Recreational	1 per 7 person capacity.
	Museum, Gallery, Library	1 per 23.2m² GFA - minimum of 15.
	Medical Clinic	6 per practitioner.
	Office	1 per 28m² GFA - minimum of 6.

	Mixed Use	Sum of separate use requirements.
	Exemptions	Within defined CBD.

CITY	USE	PROVISION FOR PARKING SPACE
CORNWALL	Shopping Centre	5.5 per 1000 ft.^{2} GLA (92.9m^2).
	Supermarket	5.5 per 1000 ft.^{2} GLA (92.9m^2).
	Retail	1 per 300 ft.^{2} floor area (27.9m^2).
	Restaurant	1 per 5 person capacity.
	Hotel	1 per first 10 guest rooms plus 1 per every additional 3 guest rooms, as well as 1 per 5 person capacity in public area.
	Motel	1 per guest room.
	Commercial other than listed	1 per 300 ft.^{2} floor area (27.9m^2).
	Exemptions	Within defined CBD.

CITY	USE	PROVISION FOR PARKING SPACE
GRIMSBY	Banks	1 per 28m^2 of ground floor plus 1 per 69.5m^2 of remaining GFA.
	Restaurant	1 per 4.5m^2 - minimum of 10.
	Hotel	1 per guest room plus required spaces for any adjoining restaurant.
	Motel	1 per guest room plus required spaces for any adjoining restaurant.
	Theatre	1 per 6 seat capacity.
	Receational	1 per 6 person capacity.
	Museum, Gallery, Library	1 per 46.5m^2 of public area.
	Medical Clinic	4 per practitioner.
	Office	1 per 28m^2 of ground floor plus 1 per 69.5m^2 of remaining GFA.
	Commercial uses not listed	1 per 28m^2 of ground floor plus 1 per 69.5m^2 of GFA.

CITY	USE	PROVISION FOR PARKING SPACE
KINGSTON	Restaurant	1 per 5 employees plus 1 per 4 seat capacity.
	Hotel	1 per 3 guest rooms plus 1 per 4 person capacity of any adjoining public area.
	Museum, Gallery, Library	parking spaces = at least 75% of employees plus 1 per 70m^2 GFA.
	Medical Clinic	1 per practitioner plus 1 per 28m^2 of GFA up to 28m^2 and 1 per 46m^2 additional GFA.
	Commercial other than listed	Zone C and C_1 - 1 per 28m^2 GLA. Zone C_2 - 1 per 18.5m^2 GLA.
	Mixed Uses	Sum of separate use requirements.
	Exemption	A portion of the downtown defined in by-law.

CITY	USE	PROVISION FOR PARKING SPACE
KITCHENER	Restaurant	1 per 40 ft.^{2} public floor area (3.7m^2)
	Restaurant/ Drive-In	1 per 25 ft.^{2} GFA (2.3m^2) plus 1 per 100 ft.^{2} GFA (9.3m^2) in excess of 1,500 ft.^{2} (139.4m^2).
	Hotel	(C_4) downtown - 1 per 2 guest rooms plus 1 per 100 ft.^{2} public area (9.3m^2). (Any other zone - 1 per guest rooms plus 1 per 100 ft.^{2} public area (9.3m^2).
	Motel	(C_4) downtown - 1 per 2 guest rooms plus 1 per 100 ft.^{2} public area (9.3m^2). (Any other zone - 1 per guest room plus 1 per 100 ft.^{2} public area (9.3m^2).

	Theatre	1 per 7 seat capacity.
	Recreational	1 per 7 seat capacity.
	Museum, Gallery, Library	1 per 200 ft.^{2} GFA (18.6m^2).
	Medical Clinic	Minimum 3 per practitioner.
	Office	1 per 250 ft.^{2} office floor area (23.2m^2).
	Commercial other than listed	Neighbourhood Commercial (C_1) - 5.5 per 1000 ft.^{2} sales floor area (93m^2). Community Commercial (C_2) - 4.5 per 1000 ft.^{2} sales floor area (93m^2). Restricted Commercial (C_3) - 1 per 250 ft.^{2} GFA (23m^2). Downtown Commercial (C_4) no requirements.
	Exemption	Downtown C_4 zone.

CITY	USE	PROVISION FOR PARKING SPACE
MIDLAND	Shopping Centre	1 per 20m^2 GLA.
	Retail	< 325m^2 GFA - 1 per 90m^2 GFA. > 325m^2 GFA - 1 per 50m^2 GFA over 325m^2 GFA.
	Bank	2 per 30m^2 GFA.
	Restaurant	1 per 5 person capacity.
	Restaurant/ Take-Out	Downtown (DC zone) no requirements. Other zones 2 per 100m^2 GFA.
	Restaurant/ Drive-In	2 per 9m^2 GFA not in excess of 108m^2 plus 1 per 10m^2 GFA in excess of 180m^2.
	Hotel	1 per guest room plus 1 per 10m^2 GFA public area.
	Motel	1 per guest room plus 1 per 10m^2 GFA public area.
	Theatre	1 per 8 seat capacity.
	Recreational	1 per 8 seat capacity.
	Museum, Gallery, Library	1 per 50m^2 GFA.
	Medical Clinic	5 spaces per practitioner.
	Office	2 per 30m^2 GFA.
	Mixed Use	Sum of separate use requirements except a shopping centre which has separate requirements.
	Exemption	Defined area in downtown core.

CITY	USE	PROVISION FOR PARKING SPACE
MISSISSAUGA	Wholesaling	1.1 per 100m^2 GFA up to 6,975m^2 GFA plus .6 per 100m^2, GFA over 6,975m^2 GFA.
	Furniture/ Appliance	1.6 per 100m^2 GFA.
	Shopping Centre	Regional - 5.4 per 100m^2 GLA. District - 5.4 per 100m^2 GLA. Neighbourhood - 5.4 per 100m^2 GLA. Convenience - 4.3 per 100m^2 GLA.
	Supermarket	5.9 per 100m^2 GLA.
	Retail	5.4 per 100m^2 GFA.
	Bank	6.5 per 100m^2 GFA.
	Restaurant	16.5 per 100m^2 GFA.
	Restaurant/ Take-Out	15 per 100m^2 GFA.
	Restaurant/ Drive-In	25 per 100m^2 GFA.
	Hotel	1 per 2 guest rooms plus 10 per 100m^2 GFA public area.
	Motel	1 per guest room.
	Theatre	1 per 6 seat capacity.
	Recreational	Stadium - 1 per 6 seats capacity. Arena - 1 per 3 seat capacity. Fitness Club - 6 per 100m^2 GFA.

	Museum, Gallery, Library	3.6 per 100m² GFA.
	Medical Clinic	5 per practitioner.
	Office	3.2 per 100m² GFA.
	Mixed Use	1.6 per 100m² GFA.

CITY	USE	PROVISION FOR PARKING SPACE
NORTH BAY	Wholesaling	1 per 56m² GFA.
	Furniture/ Appliance	1 per 56m² GFA.
	Shopping Centre	1 per 18.6m² commercial floor space.
	Supermarket	1 per 56m² GFA.
	Retail	1 per 56m² GFA.
	Personal Service	1 per 56m² GFA.
	Restaurant	1 per 56m² GFA.
	Hotel	Commercial Core - 1 per 56m² GFA. Any other zone - 1 per guest room plus 1 per 9m² public area.
	Motel	Commercial Core - 1 per 56m² GFA. Any other zone - 1 per guest room plus 1 per 9m² public area.
	Theatre	1 per 5 seat capacity.
	Recreational	1 per 5 seat capacity or 1 per 3m of bench.
	Museum, Gallery, Library	1 per 93m² GFA or a minimum of 10, whichever is greater.
	Office	1 per 28m² commercial floor area.
	Commercial other than listed	Neighbourhood Commercial - 1 per 18.6m² commercial floor space. District Commercial - 1 per 18.6m² commercial floor area.

CITY	USE	PROVISION FOR PARKING SPACE
OTTAWA	Wholesaling	1 per 9.5m² GFA.
	Shopping Centres	< 20% GLA in offices or medical/dental facilities - 5.5 per 90m² GLA other than for offices. >20% GLA in offices or medical/dental facilities - 1 per 18.5m² dental/medical facility, 2 per 95m² GLA office area plus 5.5 per 95m² GLA non office space.
	Supermarket	1 per 9.5m² GFA.
	Personal Service	1 per 28.5m² GFA in excess of 28.5m².
	Restaurant	1 per 9.5m² GFA in excess of 47.5m².
	Hotel	1 per first 40 guest rooms plus 1 per 6 guest rooms in excess of 40.
	Motel	1 per first 40 guest rooms plus 1 per 6 guest rooms in excess of 40.
	Theatre	1 per 8 seat capacity.
	Recreational	Arena - 1 per 9.5m² floor area or 1 per 4 seat capacity, whichever is greater.
	Museum, Gallery, Library	1 per 95m² display area plus required spaces for additional offices, lecture halls, etc.
	Medical Clinic	4 per practitioner.
	Office	1 per 47.5m² GFA.
	Mixed Use	Sum of separate requirements.

CITY	USE	PROVISION FOR PARKING SPACE
PETERBOROUGH	Wholesaling	1 per 2,500 ft.² floor area (234.8m²).
	Furniture/ Appliance	1 per 800 ft.² floor area (74.3m²).

	Shopping Centre	1 per 200 ft.^{2} floor area (18.6m^2).
	Retail	1 per 200 ft.^{2} floor area (18.6m^2).
	Restaurant	1 per 75 ft.^{2} floor area (7m^2) or 1 per 3 seat capacity, whichever is greater.
	Restaurant/ Take-Out	1 per 25 ft.^{2} floor area (2.3m^2) a minimum of 10.
	Restaurant/ Drive-In	1 per 25 ft.^{2} floor area (2.3m^2) a minimum of 10.
	Hotel	1 per guest room plus 1 per 4 seat capacity in beverage room.
	Medical Clinic	1 per 300 ft.^{2} floor area (27.9m^2).
	Office	1 per 300 ft.^{2} floor area (27.9m^2).
	Exemption	CBD.

CITY	USE	PROVISION FOR PARKING SPACE
SARNIA	Wholesaling	1 per 70m^2 GFA.
	Shopping Centre	1 per 20m^2 GFA.
	Retail	1 per 20m^2 GFA.
	Personal Service	1 per 20m^2 GFA.
	Restaurant	1 per 6m^2 GFA or 1 per 4 seat capacity, whichever is greater.
	Hotel	1 per 3 guest rooms, 1 per 6m^2 public area, 1 per 20m^2 GFA retail and 1 per 30m^2 GFA general office.
	Motel	1 per guest room.
	Recreational	1 per 20m^2 GFA.
	Museum, Gallery, Library	1 per 40m^2 GFA.
	Medical Clinic	1 per 15m^2 GFA.
	Office	1 per 20m^2 GFA.
	Mixed Use	Sum of separate requirements.
	Exemption	Defined regional core.

CITY	USE	PROVISION FOR PARKING SPACE
SAULT STE.MARIE	Wholesaling	1 per 500 ft.^{2} (46.5m^2) first 3000 ft.^{2} (278.7 m^2) floor area plus 1 per 2000 ft.^{2} (185.8m^2) in excess of 3000 ft.^{2} (278.7m^2).
	Furniture/ Appliance	1 per 600 ft.^{2} GFA (55.7m^2) on ground floor plus 1 per 1000 ft.^{2} GFA (92.9m^2) on all other floors.
	Shopping Centre	5.5 per 1000 ft.^{2} GLA (92.9m^2).
	Retail	5 per 1000 ft.^{2} GLA (92.9m^2).
	Personal Service	1 per 150 ft.^{2} floor area (13.9m^2).
	Bank	7 per 1000 ft.^{2} GLA (92.9m^2)
	Restaurant	1 per 4 seat capacity.
	Hotel	1 per 3 guest rooms plus 1 per 2 employees.
	Motel	1 per guest room plus 1 per 2 employees.
	Theatre	1 per 10 seat capacity.
	Recreational	1 per 6 seat capacity or 1 per 75 ft.^{2} floor area (7m^2).
	Museum, Gallery Library	1 per 200 ft.^{2} floor area (18.6m^2).
	Medical Clinic	6 per practitioner (first five) and 3 per practitioner thereafter.
	Office	4.5 per 1000 ft.^{2} GLA (92.9m^2).
	Commercial other than listed	1 per 300 ft.^{2} (27.9m^2) floor area in excess of 300 ft.^{2}.

CITY	USE	PROVISION FOR PARKING SPACE
SUDBURY	Wholesaling	1 per 2 employees or 1 per 90m^2 GFA whichever is the greater.
	Furniture/ Appliance	1 per 45m^2 GFA.
	Shopping Centre	at least 3 per 100m^2 GFA.

	Supermarket	at least 3 per 100m² GFA.
	Personal Service	1 per 18m² GFA.
	Bank	1 per 36m² office space.
	Restaurant	The greater of: 1 per 3.7m² public floor area or 1 per 7m² restaurant floor area.
	Hotel	1 per first 20 guest rooms plus 1 per 4 guest rooms in excess of 20, but not exceeding 40 plus 1 per 6 guest rooms in excess of 40.
	Motel	1 per guest room.
	Theatre	1 per 8 seat capacity.
	Medical Clinic	3 per practitioner plus 1 per 2 additional employees.
	Office	1 per 36m² office space.
	Commercial other than listed	1 per 18m² GFA.
CITY	**USE**	**PROVISION FOR PARKING SPACE**
WINDSOR	Wholesaling	1 per 30m² public floor area plus 1 per 70m² GFA not public. No requirements in core.
	Retail	1 per 100m² GFA plus 1 per 30m² GFA thereafter. No requirements in core.
	Personal Service	1 per 100m² GFA plus 1 per 30m² GFA thereafter. No requirements in core.
	Restaurant	1 per 4.5m² public floor area. No requirements in core.
	Hotel	1 per 2 guest rooms plus 1 per 20m² public floor area. Core Area - 1 per 40 guest rooms plus 1 per 4 guest rooms in excess of 40, but not exceeding 60 plus 1 per 6 guest rooms in excess of 60.
	Motel	1 per guest room plus 1 for operator plus 1 per 20m² public area.
		Core Area - 1 per 40 guest rooms plus 1 per 4 guest rooms in excess of 40, but not exceeding 60 plus 1 per 6 guest rooms in excess of 10.
	Theatre	1 per 6 seat capacity plus 1 per 18m² public area. No requirement for core.
	Recreational	1 per 6 seat capacity plus 1 per 18m² public area. No requirement for core.
	Museum, Gallery, Library	1 per 54m² GFA. No requirement for core.
	Medical Clinic	1 per 30m² GFA or 5 per practitioner whichever is greater. No requirement for core.
	Office	1 per 200m² for first 2000m² GFA plus 1 per 40m² GFA thereafter. No requirement for core.
	Mixed Use	Sum of separate use requirements.

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